



3 EUROPEAN HALAL CONGRESS 2025

BOOK OF ABSTRACTS AND PAPAERS FROM 3RD EUROPEAN HALAL CONGRESS

ZBORNİK SAŽETAKA I RADOVA SA
3. EUROPSKOG HALAL KONGRESA

Sarajevo, 16-17. juni 2025.
Sarajevo, June 16-17, 2025.

1st INTERNATIONAL CONFERENCE OF

CONTEMPORARY
HALAL & FATWA
2024

ABSTRACT EBOOK

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**SPECIJALNO IZDANJE ZBORNIKA SAŽETAKA I RADOVA SA
TREĆEG EUROPOSKOG HALAL KONGRESA
I PRVE MEĐUNARODNE KONFERENCIJE O SAVREMENOM HALALU I FETVAMA
(ICCoHaF 2024).**

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PROGRAM

of

3rd EUROPEAN HALAL CONGRESS



3rd EUROPEAN HALAL CONGRESS

Hotel Hills Sarajevo :: 16th – 17th of June, 2025.

FIRST DAY - Monday, 16th June, 2025

Time	Activity, Topic and speaker name
08:00 – 09:30	REGISTRATION & ACCREDITATION Congress Center - Hotel Hills
09:30 – 10:00	CONTACT WITH MEDIA
10:00-10:45	OPENING CEREMONY OF THE CONGRESS (Hotel Hills) <ul style="list-style-type: none">• Dr. Damir Alihodžić, president of 3rd European Halal Congress Organization Committee, Bosnia and Herzegovina• Mahmoud Tatari, CEO of Halal Control LTD Germany• Prof. dr. Mustafa Hasani, Dean of Faculty of Islamic Studies, University of Sarajevo, Bosnia and Herzegovina
10:00-10:45	<ul style="list-style-type: none">• Iszam Bin Padil, Senior Principal Assistant Director Department of Islamic Development Malaysia (JAKIM), Malaysia• H. E. İhsan Övüt, Secretary General of OIC/SMIIC, Turkiye• Dr. Ahmed Purdić, Fatwa-i emin, Envoy of the Grand Mufti, Islamic Community in Bosnia and Herzegovina• Signing a memorandum of understanding• Congress Awards
10:45 – 11:15	COFFEE BREAK AND NETWORKING
11:15 – 12:00	PLENARY SECTION (Chairmans: Prof. dr. Mian Riaz, Prof. dr. Midhat Jasic, Dr. Pornpimol Mahamad) <ul style="list-style-type: none">• SMIIC AND OIC GLOBAL HALAL QUALITY INFRASTRUCTURE Ihsan Ovut, Secretary General of SMIIC, Turkiye• HALAL COSMETICS: AN EMERGING PARADIGM IN THE BEAUTY INDUSTRY Prof. dr. Mian Riaz, Texas A&M University, Texas, USA• HALAL STATUS OF ACTIVE SUBSTANCES AND EXCIPIENTS IN INSULINS Prof. dr. Midhat Jasic, emeritus, academic, Tuzla University, Bosnia and Herzegovina• IMPLEMENTING HALAL FORENSIC SCIENCE THROUGH ADVANCED DNA-BASED ASSURANCE FOR HALAL FOOD SAFETY IN THAILAND Dr. Pornpimol Mahamad, The Halal Science Center Chulalongkorn University, Bangkok, Thailand

INVITED SPEAKERS (Chairmans: Dr. Mohammed Ali Alsheikh, Dr. Nureesun Mahamud, Dr. Tharwat Mamdouh)

- | | |
|---------------|---|
| 12:00 – 13:15 | <ul style="list-style-type: none"> • INTEGRATING HALAL EDUCATION INTO ACADEMIA: A GLOBAL REVIEW AND FRAMEWORK FOR CURRICULUM DEVELOPMENT
Dr. Mohammed Ali ALSHEIKH, SMIIC General Secretariat, Turkiye • METABOLOMICS-BASED PROFILING OF PORCINE AND BOVINE GELATIN FOR HALAL AUTHENTICATION
Dr. Nureesun Mahamud, The Halal Science Center Chulalongkorn University, Bangkok, Thailand • HALAL TOURISM SERVICES FROM THE STANDARDIZATION POINT OF VIEW
MSc. Yasin Zülfikaroğlu - Specialist, SMIIC General Secretariat, Turkiye • HALAL STANDARD AS A DRIVER OF QUALITY AND PRODUCTION INTERNATIONALIZATION
Biljana Đilas, member of Managing Board of Vindija Group, Croatia • FUTURE FORESIGHT OF HALAL IN THE CONTEXT OF SUSTAINABLE TECHNOLOGIES WITH FOCUS TO ANIMAL WASTE INDEX
Dr. Tharwat Mamdouh Al-Bataineh, UAE |
|---------------|---|

13:15 – 14:15 **LUNCH AND PRAYER TIME**

14:30 **MEETING OF INITIATIVE FOR REVIVAL AHC-EUROPE (PARALLEL SECTION)**

CERTIFICATION AND ACCREDITATION OF HALAL QUALITY, STATUS AND OPPORTUNITIES FOR IMPROVEMENT (Chairmans: Msc. Gemma Ali, Syed Muaz Shah, Dr. Ema Obralić)

- | | |
|---------------|---|
| 14:15 – 15:30 | <ul style="list-style-type: none"> • HALAL ETHICS: LABOR STANDARDS IN THE FRAMEWORK OF ISLAMIC LAW AND ESG;
Syed Muaz Shah, Pakistan • IMPORTANCE OF HALAL LOGISTICS
Elif Kübra Övüt, Turkiye • AWARENESS OF HALAL CERTIFIED PRODUCTS AND SERVICES IN EUROPE
Dr. Aldin Dugonjic, Croatia • THE IMPACT OF ETHICAL AND HEALTH GUIDELINES OF HALAL STANDARDS ON LIFESTYLE AND THE GLOBAL GROWTH OF THE HALAL MARKET
Dr. Ema Obralić, Bosnia and Herzegovina • UK HALAL CONSUMERS' PERSPECTIVES ON LIVESTOCK PRODUCTION PRACTICES AND ANIMAL WELFARE
Msc. Gemma Ali, Halal Animal Welfare Association, United Kingdom |
|---------------|---|
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HALAL IN MEDICINE AND PHARMAACUTICALS (Chairmans: Dr. Jawad Alzeer, Dr. Shamima Abdul Rahman, Dr. Suraiya Abdul Rahman)

15:30-16:30

- LIFESTYLOPATHY AND HALALOPATHY: A HOLISTIC APPROACH TO ETHICAL AND PERSONALIZED HEALTHCARE
Dr. Jawad Alzeer, Switzerland
- SYNTHESIS AND CHARACTERIZATION OF CAPSULE SHELL FORMULATION USING KAPPA CARRAGEENAN AS AN ALTERNATIVE HALAL BINDER
Dr. Shamima Abdul Rahman, Malaysia
- DEVELOPING A HALAL BUILT-IN WORK SYSTEM FOR PHARMACEUTICAL MANUFACTURING
Dr. Suraiya Abdul Rahman, Malaysia
- NUTRITIONAL HABITS OF RESPONDENTS WHO CONSUME ONLY HALAL FOOD AGED 30–60 IN THE TUZLA CANTON
Msc. Semira Karijašević, Bosnia and Herzegovina

DINNER TIME 20:00 – 22:00



3rd EUROPEAN HALAL CONGRESS
Hotel Hills Sarajevo :: 16 – 17th of June, 2025

SECOND DAY – Tuesday, 17th June, 2025

Time	Activity, Topic and speaker name
8:15 – 9:30	REGISTRATION Congress Center-Hotel Hills
09:30 – 10:30	<p>PLENARY LECTURES OF SECOND DAY (Chairmans: MSc. Emmanouil Geneiatakis, Prof. dr. Ismet Kalić, Dr. Sibel Demircioğlu)</p> <ul style="list-style-type: none"> • IMPACT OF NEW US TARIFFS ON THE EXPANSION OF THE GLOBAL HALAL MARKET; Prof. dr. Kadrija Hodžić, Bosnia and Herzegovina • HALAL QUALITY AND ISLAMIC ECONOMY IN HIGHER EDUCATION IN BOSNIA AND HERZEGOVINA Prof. dr. Ismet Kalić, Rector of FINRA University Tuzla, Bosnia and Herzegovina • ANIMAL FEED BETWEEN FOOD SAFETY AND HALAL COMPLIANCE: TOWARD A UNIFIED FRAMEWORK TO ENSURE TRUST AND INTEGRITY FROM FARM TO FORK MSc. Emmanouil Geneiatakis, Senior Advisor at GovIntelHub in Anderlecht, Belgium • HALAL IN THE CONTEXT OF SUSTAINABILITY Dr. Sibel Demircioğlu, Turkiye
10:30 – 11:00	<p>HALAL IN COSMETIC INDUSTRY (Chairmans: Msc. Semira Karijašević, MSc. Fashli Syafiq Abd Razak)</p> <ul style="list-style-type: none"> • SYSTEMATIC LITERATURE REVIEW ON ALTERNATIVE OPTIONS FOR HALAL CRITICAL INGREDIENTS IN HALAL PHARMACEUTICAL AND COSMETICS MSc. Fashli Syafiq Abd Razak, Senior Lecturer, Faculty of Pharmacy, University of Cyberjaya Malaysia • EXPLORING HALAL COSMETICS: MORUS NIGRA AS AN ALTERNATIVE TO HALAL COLORING IN LIPSTICK AND ANTIMICROBIAL CREAM FORMULATIONS Dr. Mahani Mahadi, Faculty of Pharmacy, University of Cyberjaya, Malaysia
11:00 – 11:30	<p>HALAL TOURISM AND GASTRONOMY (Chairmans: Emina Nizic, Dr. Sibel Demircioğlu, Dr. Mahani Mahadi)</p> <ul style="list-style-type: none"> • TOURISM VALORISATION OF SPECIFIC RAMADAN TRADITIONS AND DEVELOPMENT OF HALAL TOURISM THROUGH THE PROJECT "VISIT SARAJEVO: FEEL THE SPIRIT OF RAMADAN" Emina Nizic, Bosnia and Herzegovina • FLAVOURS OF FAITH: HALAL GASTRONOMY AS A GATEWAY TO MUSLIM-FRIENDLY TOURISM IN SARAJEVO Waleed Jahangir, Director of the London Muslim Travel Show and the World Halal Food Festival, United Kingdom
Congress closing	<p>CONGRESS RESOLUTIONS</p> <p>Sarajevo Halal EXPO group visit 14:30-16:00</p>

Poster section	Title of Poster Presentation, authors
	<ul style="list-style-type: none">• THE INFLUENCE OF <i>LACTOBACILLUS SPP.</i> ON THE HYGIENIC SAFETY OF DRY CHEESE- A TRADITIONAL HALAL PRODUCT OF BOSNIA AND HERZEGOVINA Zinka Hojkurić Rahmanović, Berin Rahmanović, Adnan Alijagić, Kenan Muratović, Damir Alihodžić, Mehmed Sultanović, Kenan Čaklovica• TESTING THE SEASONALITY OF <i>Campylobacter</i> species ISOLATES FROM SAMPLES IN CHICKEN MEAT PRODUCTION Elma Hrustemović, Faruk Čaklovica, Vesna Jaki-Tkalec, Sanja Furmeg, Zrinka Štritof, Lejla Kapur-Pojškić, Enida Članjak-Kudra, Usman Mir Khan• TESTING THE EFFECTIVENESS OF 6% DOMESTIC VINEGAR ON THE REDUCTION OF <i>Campylobacter</i> species FROM SURFACES IN CHICKEN MEAT PRODUCTION Elma Hrustemović, Vesna Jaki-Tkalec, Sanja Furmeg, Zrinka Štritof, Lejla Kapur-Pojškić, Jasmin Ramić, Berin Rahmanović, Usman Mir Khan• RIGOROUS SANITARY MEASURES TO REDUCE <i>Campylobacter</i> IN CHICKEN PRODUCTION AS AN ALTERNATIVE TO THE PROPHYLAXIS USE OF ANTIBIOTICS Elma Hrustemović, Faruk Čaklovica, Vesna Jaki-Tkalec, Sanja Furmeg, Zrinka Štritof, Nikola Paripović, Usman Mir Khan• PRESENCE OF ANTIBIOTIC-RESISTANT <i>Campylobacter</i> species ISOLATES IN CHICKEN MEAT PRODUCTION IN BOSNIA AND HERZEGOVINA Elma Hrustemović, Vesna Jaki-Tkalec, Sanja Furmeg, Zrinka Štritof, Nikola Paripović, Kenan Čaklovica, Usman Mir Khan• IMPROVING HALAL CERTIFICATION THROUGH BOW TIE ANALYSIS AND SYSTEMIC RISK MANAGEMENT APPROACH Benjamin Čaušević, Amir Ibrahimagić, Emina Idrizović, Muamer Mandra, Admir Gluhić, Damir Alihodžić, Kemal Sejranović, Azra Sinanović• THE CONNECTION BETWEEN HALAL CERTIFICATION AND EFFECTIVE COMMUNICATION IN THE PROMOTION OF HALAL PRODUCTS Jasna Bajramović, Benjamin Čaušević, Muhamed Gladan, Muamer Mandra, Damir Alihodžić, Kemal Sejranović• HALAL ETICS IN MEDICAL PRACTISE Mirsad Šljivić, Midhat Jašić, Mirsad Arnautalić, Valdet Peštalić



3. EUROPEAN HALAL CONGRESS 2025



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Predgovor

Poštovani čitatelji,

Pred vama se nalazi specijalno izdanje Zbornika sažetaka i radova, koje objedinjuje rezultate dva značajna međunarodna naučna skupa: Trećeg Europskog Halal kongresa, održanog 16. i 17. juna 2025. godine u Sarajevu, te Prve međunarodne konferencije o savremenom halal i fetvama (ICCoHaF 2024), održane 18. i 19. septembra u Maleziji.

U prvom dijelu zbornika predstavljani su sažeci radova sa Trećeg Europskog Halal kongresa, koji pokrivaju aktuelne teme iz sljedećih oblasti:

- Certificiranje i akreditacija halal kvalitete: stanje i mogućnosti
- Halal u medicini i farmaciji
- Halal u kozmetičkoj industriji
- Halal turizam i gastronomija
- Halal u kontekstu održivih tehnologija i životnog stila
- Analitičke metode i identifikacija harama
- Halalonomija
- Halal u obrazovanju i islamskom pravu

Radovi u ovom dijelu zbornika tretiraju savremena pitanja i izazove vezane za halal u različitim industrijskim sektorima, te doprinose razvoju naučne i stručne misli u ovom specifičnom i sve značajnijem polju.

Drugi dio zbornika sadrži sažetke radova prezentiranih na Prvoj međunarodnoj konferenciji o savremenom halal i fetvama. Teme ovog segmenta pokrivaju širok spektar oblasti, uključujući:

- Halal nauka i gastronomija
- Turizam i ugostiteljstvo
- Halal ekonomija
- Halal životni stil
- Pravne perspektive i jurisdikcije
- Halal obrazovanje, razvoj kadrova i jačanje kapaciteta
- Islamska etika i održivi razvoj
- Edukacija i osviještenost potrošača
- Upravljanje halalom i fetvama

Ovo specijalno izdanje Zbornika svjedoči o rastućem interesu akademske i stručne zajednice za integraciju halal koncepta u savremene naučne, društvene i ekonomske tokove, te nudi vrijedan uvid u multidisciplinarnu pristupe razvoju halala.

S nadom da će ovaj zbornik poslužiti kao inspiracija za buduća istraživanja, saradnje i inovacije u halal sektoru – želimo vam ugodno čitanje.

Prof. dr. Midhat Jašić, odgovorni urednik
Dr. sc. Damir Alihodžić, urednik

Foreword

Dear readers,

You are holding in your hands a special edition of the Book of Abstracts and Papers which brings together the outcomes of two significant international academic events: the Third European Halal Congress, held on June 16–17, 2025, in Sarajevo, and the First International Conference on Contemporary Halal and Fatwa (ICCoHaF 2024), held on September 18–19, 2024, in Malaysia.

The first part of this publication presents abstracts from the Third European Halal Congress, featuring scholarly contributions in the following thematic areas:

- Certification and accreditation of halal quality: status and opportunities
- Halal in medicine and pharmaceuticals
- Halal in the cosmetics industry
- Halal tourism and gastronomy
- Halal in the context of sustainable technologies and lifestyle
- Analytical methods and identification of haram
- Halalonomics
- Halal in education and Islamic law

These papers address contemporary issues and challenges related to halal in various industry sectors and contribute meaningfully to the advancement of academic and professional discourse in the field.

The second part of the book includes abstracts presented at the First International Conference on Contemporary Halal and Fatwa. The topics covered span a wide range of fields, including:

- Halal science and gastronomy
- Tourism and hospitality
- Halal economy
- Halal lifestyle
- Legal perspectives and jurisdictions
- Halal education, talent and capacity building
- Islamic ethics and sustainability
- Consumer education and awareness
- Halal and fatwa governance

This special edition stands as a testament to the growing interest of the academic and professional community in integrating the halal concept into modern scientific, social, and economic frameworks. It offers valuable insights into the multidisciplinary approaches to halal development.

We hope that this collection of abstracts will serve as a source of inspiration for future research, collaboration, and innovation in the halal sector, and we wish you an engaging and insightful reading experience.

Prof. dr. Midhat Jašić, Editor-in-Chief
Dr. sc. Damir Alihodžić

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CHAPTER

CERTIFICATION AND ACCREDITATION OF HALAL QUALITY,
STATUS AND OPPORTUNITIES

CERTIFICIRANJE I AKREDITACIJA HALAL KVALITETE,
STANJE I MOGUĆNOSTI

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

SYSTEMATIC LITERATURE REVIEW ON ALTERNATIVE OPTIONS FOR HALAL CRITICAL INGREDIENTS IN HALAL PHARMACEUTICAL AND COSMETICS

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ABSTRACT

The global halal market is expanding fast as halal products establish themselves as a new standard for safety and quality assurance. The constituent of a product, whether pharmaceutical or cosmetic, determines its halal classification. Ingredients that do not correspond to the halal standard are commonly known as critical ingredients. As a result, various substitutes for critical ingredients should be developed to raise global demand for the halal market. This study aims to review the current research development on the alternatives for halal critical ingredients in halal pharmaceuticals and cosmetics and to explore the testing methods used to test the alternative option for halal critical ingredients. This systematic study followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta Analyses) standards and all the publications in this review meet the research eligibility requirements, which were searched and selected using electronic databases such as PubMed, Scopus, and MyCite. Results and This study examined approximately 21 publications that proposed various substances derived from sources such as plants, animals, marines, and microbes. Three publications illustrated the possible use of the choice in insulin-resistant patients, whereas seven articles discussed the potential replacement for gelatine. Insulin and gelatine are the most frequently explored topics among the publications included in this review. Their alternative possibilities, whether derived from plants, marine sources, or microbe-based substances, are thoroughly evaluated to determine their desired effect or activity. The testing methodologies demonstrated that the alternative possibilities are far superior to the critical ingredients in terms of texture, morphology, activity, composition, and even the cost of synthesis.

Keywords: *halal, critical ingredients, systematic literature review, insulin, gelatine*

SISTEMATSKI PREGLED LITERATURE O ALTERNATIVNIM OPCIJAMA ZA HALAL KRITIČNE SASTOJKE U HALAL FARMACEUTSKIM I KOZMETIČKIM PROIZVODIMA

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SAŽETAK

Globalno halal tržište brzo se širi jer se halal proizvodi nameću kao novi standard za sigurnost i osiguranje kvaliteta. Sastojci proizvoda, bilo da se radi o farmaceutskim ili kozmetičkim proizvodima, određuju njegovu halal klasifikaciju. Sastojci koji ne ispunjavaju halal standarde poznati su kao kritični sastojci. Zbog toga bi trebalo razviti različite zamjene za kritične sastojke kako bi se zadovoljila globalna potražnja za halal proizvodima. Ova studija ima za cilj pregledati trenutni razvoj istraživanja o alternativama za halal kritične sastojke u halal farmaceutskim i kozmetičkim proizvodima, kao i istražiti metode testiranja koje se koriste za provjeru ovih alternativnih opcija. Sistematska studija je sprovedena u skladu sa PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) standardima, a sve publikacije u ovom pregledu zadovoljavaju kriterije za uključivanje u istraživanje. Pretraga i selekcija obavljena je putem elektronskih baza podataka kao što su PubMed, Scopus i MyCite. U ovom pregledu analizirano je približno 21 publikacija koja je predložila različite supstance izvedene iz biljnih, životinjskih, morskih i mikrobnih izvora. Tri publikacije su ilustrirale moguću upotrebu alternativa kod pacijenata s insulinom rezistencijom, dok je sedam članaka raspravljalo o potencijalnim zamjenama za želatin. Insulin i želatin su najčešće istraživane teme među publikacijama uključenim u ovaj pregled. Njihove alternative, bilo da potiču iz biljaka, morskih izvora ili mikrobnih supstanci, detaljno su procijenjene kako bi se utvrdio željeni efekat ili aktivnost. Metodologije testiranja su pokazale da su alternative značajno superiornije u odnosu na kritične sastojke po pitanju teksture, morfologije, aktivnosti, sastava, pa čak i troškova sinteze.

Ključne riječi: *halal, kritični sastojci, sistematski pregled literature, insulin, želatina*

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

UK HALAL CONSUMERS PERSPECTIVE OF LIVESTOCK PRACTICES, ANIMAL WELFARE AND TECHNOLOGY IN MEAT PRODUCTION

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ABSTRACT

The Halal industry predominantly consists of products and services that comply with Islamic principles, which should be inclusive of the sustainable use of raw materials and ethical treatment of animals. Conventionally, Halal certification focuses on religiously permissible (Halal) food and goods, the emphasis of humane treatment of animals primarily during transport and slaughter with animal rearing standards being set by individual country agricultural policy not international Halal standards. However, recent concerns have emerged regarding animal welfare before slaughter. As public awareness grows about food standards and animal rearing, especially through social media, there is increasing scrutiny of the welfare of animals used in Halal meat production. In the UK, the Halal meat industry is mainly regulated for food safety during transport, slaughter and cross contamination with adherence to the Animal Welfare Act and related legislation. Nonetheless, the current Halal certification process does not specifically address animal rearing standards, despite Islamic teachings highlighting animal welfare throughout the production cycle, animal rearing is monitored outside the Halal certification process through welfare assurance schemes, government guidance and animal welfare legislation. The integration of Tayyib—referring to purity and ethical quality—into Halal practices is gaining attention, as both terms appear together in the Quran, the aspect of Tayyib being to consider the welfare and rearing of the animal before slaughter as well as processes and substance used post slaughter. This has led to calls for greater transparency and consideration of animal welfare in Halal meat production. As modern farming practices evolve and new technologies, such as cultured meat, emerge, there is a need for updated standards that incorporate both Halal and Tayyib principles with clear labelling reflecting a growing consumer demand for ethically reared meat and sustainable practices. This study incorporates a systematic analysis of Halal monitoring standards alongside Agricultural laws and guidance within the UK and major Halal export countries, as well as a survey among UK Halal consumers to explore their understanding and concerns regarding farming practices and animal welfare in accordance with Islamic principles for the meat they consume. Additionally, the survey aimed to assess consumer awareness and acceptance of emerging food technologies, such as lab-grown meat and artificial intelligence, within the Halal supply chain. Results show animal welfare is a moderate to important consideration for most purchasers (46% and 31% respectively), though cost and preference often guide decisions. Gender and region significantly impact the balance between ethical concerns and practical factors ($p = 0.003$, $p < 0.001$). Females actively promote animal welfare more than males ($p = 0.001$), and younger consumers show openness to ethical considerations. A high percentage of respondents (78%) are willing to pay more

for ethically reared meat, particularly among the 26–35 age group (90%, $p < 0.018$), with age and region affecting the perception of the relationship between animal welfare and meat quality ($p < 0.036$ and $p < 0.001$). 73% of consumers do not consider meat from animals raised intensively and having never been outdoors as Halal, with significant differences based on gender ($p < 0.004$). Most participants are unsure if AI in animal agriculture can improve animal welfare (69%), with regional differences influencing opinions ($p < 0.001$). A significant portion is neutral or very unlikely to try lab-grown meat (42% and 56% respectively), with regional variations ($p < 0.097$). These findings highlight the complexities of consumer attitudes towards ethical and technological factors in meat production. Further research is needed to explore the specific concerns and knowledge gaps underlying consumer uncertainty regarding AI and lab-grown meat, as well as the long-term implications of intensive farming practices on Halal perceptions and which are driving the market.

Keywords: *halal certification, tayyib, animal welfare, ethical meat, sustainable farming, halal meat, consumer awareness, lab-grown meat, AI in agriculture, food technology*

PERSPEKTIVA HALAL POTROŠAČA U UJEDINJENOM KRALJEVSTVU O STOČARSKIM PRAKSAMA, DOBROBITI ŽIVOTINJA I TEHNOLOGIJI U PROIZVODNJI MESA

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SAŽETAK

Industrija halala uglavnom se sastoji od proizvoda i usluga koje su u skladu s islamskim principima, što bi trebalo uključivati i održivo korištenje sirovina te etički tretman životinja. Tradicionalno, halal certifikacija fokusira se na religijski dozvoljenu (halal) hranu i robu, pri čemu je naglasak na humanom postupanju sa životinjama prvenstveno tokom transporta i klanja, dok se standardi uzgoja životinja određuju prema nacionalnim poljoprivrednim politikama, a ne međunarodnim halal standardima. Ipak, sve su izraženije zabrinutosti u vezi sa dobrobiti životinja prije klanja. Kako javna svijest o standardima hrane i uzgoju životinja raste, naročito putem društvenih mreža, raste i nadzor nad uslovima u kojima žive životinje namijenjene halal proizvodnji mesa. U Ujedinjenom Kraljevstvu, industrija halal mesa regulisana je prvenstveno u pogledu sigurnosti hrane tokom transporta, klanja i sprječavanja kontaminacije, uz poštivanje Zakona o dobrobiti životinja i srodne regulative. Ipak, trenutni proces halal certifikacije ne uključuje posebno standarde uzgoja životinja, iako islamska učenja naglašavaju brigu o dobrobiti životinja kroz cijeli proizvodni ciklus. Uzgoj životinja prati se izvan procesa halal certifikacije, putem programa za osiguranje dobrobiti, vladinih smjernica i zakonodavstva. Integracija pojma *Tayyib* — koji se odnosi na čistoću i etičku kvalitetu — u halal prakse dobiva na značaju, jer se oba termina zajedno spominju u Kur'anu. *Tayyib* uključuje razmatranje dobrobiti i uzgoja životinja prije klanja, kao i procesa i supstanci korištenih nakon klanja. Ovo je dovelo do poziva za većom transparentnošću i pažnjom prema dobrobiti životinja u halal proizvodnji mesa. Kako se moderne poljoprivredne prakse razvijaju i pojavljuju nove tehnologije, poput laboratorijskog mesa, javlja se potreba za ažuriranim standardima koji uključuju i halal i *tayyib* principe, uz jasno označavanje, što odražava rastuću potražnju potrošača za etički uzgojenim

mesom i održivim praksama. Ova studija uključuje sistemsku analizu halal standarda nadzora, zajedno s poljoprivrednim zakonima i smjernicama u UK-u i glavnim zemljama izvoznicama halal proizvoda, kao i anketu među halal potrošačima u UK-u s ciljem ispitivanja njihovog razumijevanja i zabrinutosti u vezi s praksama uzgoja i dobrobiti životinja u skladu s islamskim principima. Također, anketa je imala za cilj procijeniti svijest i prihvaćenost novih prehrambenih tehnologija, poput laboratorijski uzgojenog mesa i umjetne inteligencije, u okviru halal lanca opskrbe. Rezultati pokazuju da je dobrobit životinja umjereno do veoma važna za većinu kupaca (46% i 31%), iako često cijena i lične preferencije određuju konačnu odluku. Spol i regija značajno utiču na ravnotežu između etičkih stavova i praktičnih faktora ($p = 0.003$, $p < 0.001$). Žene znatno više promovišu dobrobit životinja u poređenju s muškarcima ($p = 0.001$), dok mlađi potrošači pokazuju veću otvorenost prema etičkim pitanjima. Veliki postotak ispitanika (78%) spreman je platiti više za etički uzgojeno meso, posebno u dobnoj grupi od 26–35 godina (90%, $p < 0.018$), pri čemu starost i regija utiču na percepciju veze između dobrobiti životinja i kvalitete mesa ($p < 0.036$ i $p < 0.001$). Čak 73% potrošača ne smatra meso životinja uzgajanih u intenzivnim uslovima i bez izlaska na otvoreno halalom, uz značajne razlike po spolu ($p < 0.004$). Većina ispitanika nije sigurna može li AI (umjetna inteligencija) poboljšati dobrobit životinja u poljoprivredi (69%), a regije također pokazuju različita mišljenja ($p < 0.001$). Značajan dio ispitanika je neutralan ili veoma malo vjerovatno da će isprobati laboratorijski uzgojeno meso (42% i 56% redom), uz regionalne razlike ($p < 0.097$). Ovi nalazi ukazuju na složenost stavova potrošača prema etičkim i tehnološkim aspektima proizvodnje mesa. Potrebna su dodatna istraživanja kako bi se detaljnije ispitali specifični razlozi i nedostaci u znanju koji stoje iza nesigurnosti potrošača u vezi s AI i laboratorijskim mesom, kao i dugoročne implikacije intenzivnih metoda uzgoja na percepciju halala i faktore koji pokreću tržište.

Ključne riječi: halal certifikacija, tajjib, dobrobit životinja, etičko meso, održiva poljoprivreda, halal meso, svijest potrošača, laboratorijski uzgojeno meso, vještačka inteligencija u poljoprivredi, prehrambena tehnologija

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

IMPORTANCE OF HALAL LOGISTICS

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ABSTRACT

The interest and demand for the certification of halal products and services of the approximately 1.8 billion Muslim population living in the world is increasing. Today, the concept of halal is not limited to food products; it addresses a wide range of sectors such as finance, textiles, pharmaceuticals, cosmetics, logistics and tourism. Looking at the Halal sector globally, the largest share in Halal certification activities is in the food sector, while the lowest share is in the logistics sector. However, according to the concept of 'Beyond The Table' in Halal, it is as important to deliver Halal conditions to the consumer as it is to produce Halal food or products. Current Halal logistics standards such as OIC/SMIIC, MS (Malaysia) have determined separate requirements for each stage of logistics activities and published them in a form suitable for use. In the new period, awareness needs to be created both academically and through the activities of certification institutions for the dynamic use of these standards. Because all awareness to be created in the field of Halal logistics will affect both producers and Muslim consumers in terms of compliance with religious guidelines, maintaining product integrity, consumer trust and confidence, global market expansion, regulatory compliance, protection against economic loss, innovation and technological advancements.

Keywords: *Halal logistics, OIC/SMIIC halal standards, MS Halal Standards, academic studies for Halal logistics in global, awareness of Halal logistic from HCBs*

ZNAČAJ HALAL LOGISTIKE

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SAŽETAK

Interes i potražnja za certificiranjem halal proizvoda i usluga među približno 1,8 milijardi muslimana širom svijeta neprestano raste. Danas koncept halal nije ograničen samo na prehrambene proizvode; on obuhvata širok spektar sektora kao što su finansije, tekstil, farmaceutski proizvodi, kozmetika, logistika i turizam. Gledajući globalno halal sektor, najveći udio halal certifikacijskih aktivnosti pripada prehrambenoj industriji, dok najmanji udio ima logistički sektor. Ipak, prema konceptu „Izvan stola“ (Beyond The Table) u halalu, isporuka halal uslova do krajnjeg potrošača jednako je važna kao i proizvodnja halal hrane ili proizvoda. Postojeći halal logistički standardi poput OIC/SMIIC i MS (Malezija) definišu posebne zahtjeve za svaku fazu logističkih aktivnosti i objavljeni su u formi pogodnoj za primjenu. U novom periodu, potrebno je podići svijest kako u akademskim krugovima, tako i kroz aktivnosti certifikacijskih institucija, kako bi se ovi standardi dinamično koristili. Jer, svaka svijest koja se stvori u oblasti halal logistike imaće direktan utjecaj i na proizvođače i na muslimanske potrošače u pogledu: usklađenosti s vjerskim smjernicama, očuvanja integriteta proizvoda, jačanja povjerenja i sigurnosti potrošača, širenja na globalna tržišta, usklađenosti s propisima, zaštite od ekonomskih gubitaka, te podsticanja inovacija i tehnološkog napretka. Zato je razvoj i primjena halal logistike ključni korak ka jačanju cijelog halal lanca vrijednosti.

Ključne riječi: Halal logistika, OIC/SMIIC halal standardi, MS halal standardi, akademske studije o halal logistici na globalnom nivou i podizanje svijesti o halal logistici od strane halal certifikacijskih tijela (HCBs)

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

IMPROVING HALAL CERTIFICATION THROUGH BOW TIE ANALYSIS AND SYSTEMIC RISK MANAGEMENT

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ABSTRACT

The concept of risk assessment and preventive action is embedded in Islamic teachings, as reflected in the hadith of Prophet Muhammad, peace and blessings be upon him: "Should I leave my camel untied and rely on Allah, or should I tie it and then rely on Allah?" The Prophet, peace and blessings be upon him, replied: "Tie your camel and then rely on Allah." (Tirmizi, 2517). This hadith clearly emphasizes the importance of precaution and systematic action before placing reliance on divine decree. In the context of halal certification, this can be applied to risk management in the supply chain, where reliance cannot solely be placed on declarative statements from producers. This paper explores how risk-based approaches can be used to improve the efficiency and reliability of halal certification systems. It focuses particularly on risk assessment methodologies, including the identification of potential hazards, risk quantification, and the implementation of mitigation measures. The paper examines the application of Bow Tie analysis in detail, which enables structured visualization and management of risks within the halal supply chain. This approach provides a comprehensive insight into the causes, consequences, and control measures for key threats such as contamination, mislabelling, and lack of traceability. Based on the analysis of case studies from certified production facilities, the paper shows how the combination of Bow Tie analysis and other tools can improve the accuracy of identification and management of dynamic factors that affect compliance with halal standards. The main findings of the paper indicate that structured risk analysis approaches, including the Bow Tie model, significantly contribute to strengthening the integrity of halal certification, reducing non-compliance, and increasing consumer trust. Based on these findings, the paper offers concrete guidelines for regulatory bodies and supervisory institutions on the application of advanced, data-driven methods for verifying halal standards and ensuring consistency in the global halal market.

Keywords: *bow tie, halal certification, risk management, HACCP, transparency*

POBOLJŠANJE HALAL CERTIFIKACIJE KROZ BOW TIE ANALIZU I SISTEMSKI PRISTUP UPRAVLJANJU RIZICIMA

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SAŽETAK

Koncept procjene rizika i preventivnog djelovanja ukorijenjen je u islamskom učenju, što se ogleda i u hadisu poslanika Muhammeda, mir i blagoslov s njim: „Da li da pustim devu i oslonim se na Allaha, ili da je vežem pa se onda oslonim na Allaha?“ Poslanik, mir i blagoslov s njim, odgovori: „Veži svoju devu, pa se onda osloni na Allaha.“ (Tirmizi, 2517). Ovaj hadis jasno naglašava važnost predostrožnosti i sistematskog djelovanja prije oslanjanja na Božiju odredbu. U kontekstu halal certifikacije, ovo se može primijeniti na upravljanje rizicima u lancu snabdijevanja, gdje se ne može isključivo oslanjati na deklarativne izjave proizvođača. Ovaj rad istražuje kako se pristupi zasnovani na upravljanju rizicima mogu koristiti za poboljšanje efikasnosti i pouzdanosti sistema halal certifikacije. Poseban fokus je na metodologijama procjene rizika, uključujući identifikaciju potencijalnih opasnosti, kvantifikaciju rizika i implementaciju mjera za njihovo ublažavanje. Rad detaljno analizira primjenu Bow Tie analize, koja omogućava strukturisanu vizualizaciju i upravljanje rizicima unutar halal lanca snabdijevanja. Ovaj pristup pruža sveobuhvatan uvid u uzroke, posljedice i mjere kontrole za ključne prijetnje poput kontaminacije, pogrešnog označavanja i nedostatka sljedivosti. Na osnovu analize studija slučaja iz certificiranih proizvodnih objekata, rad pokazuje kako kombinacija Bow Tie analize i drugih alata može poboljšati tačnost u identifikaciji i upravljanju dinamičkim faktorima koji utiču na usklađenost s halal standardima. Glavni zaključci rada ukazuju na to da strukturirani pristupi analizi rizika, uključujući Bow Tie model, značajno doprinose jačanju integriteta halal certifikacije, smanjenju neusklađenosti i povećanju povjerenja potrošača. Na osnovu ovih nalaza, rad nudi konkretne smjernice za regulatorna tijela i nadzorne institucije o primjeni naprednih, na podacima zasnovanih metoda za provjeru halal standarda i osiguranje dosljednosti na globalnom halal tržištu.

Ključne riječi: bow tie, halal certifikacija, upravljanje rizicima, HACCP, transparentnost

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

ANIMAL FEED BETWEEN FOOD SAFETY AND HALAL COMPLIANCE: TOWARD A UNIFIED FRAMEWORK TO ENSURE TRUST AND INTEGRITY FROM FARM TO FORK

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ABSTRACT

The quality and safety of animal feed directly influence the safety and integrity of food products derived from animals intended for human consumption. With the global population projected to reach 9.8 billion by 2050—including 2.8 billion Muslims—meeting the growing demand for animal protein in a safe, sustainable, and religiously compliant manner is a global priority. Risks in feed production include both unintentional hazards such as contamination and inherent risks, as well as intentional threats such as fraud or adulteration. These risks can compromise animal health and undermine halal certification, leading to loss of consumer trust. International regulatory frameworks, including Codex Alimentarius and Islamic jurisprudence, highlight the importance of hygiene, traceability, and segregation to prevent cross-contamination and ensure compliance with both food safety and halal requirements. Integrating Halal Assurance Systems (HAS) with well-established food safety management systems such as Hazard Analysis and Critical Control Points (HACCP) and Good Manufacturing Practices (GMP) is crucial to managing these risks effectively. Animal nutrition plays a critical role in determining the halal status of meat, dairy, and poultry products. The use of non-halal ingredients or the presence of contaminants can compromise halal certification. This necessitates rigorous ingredient verification, supplier audits, and robust supply chain controls. Regional disparities in feed regulations significantly affect halal compliance by influencing ingredient approvals, risk assessment methods, and certification procedures. Despite notable progress, the lack of harmonized global halal feed standards continues to pose challenges. The complexity of international supply chains and inconsistent regulatory enforcement open pathways for both accidental contamination and intentional fraud. There is an urgent need to establish a universal ISO standard for halal animal feed to provide a globally harmonized framework. Such a standard would improve transparency, support fair trade, and ensure consistent application of halal principles from farm to fork. It would also encourage adoption by non-Muslim-majority economies, protecting both food safety and religious values across diverse markets. This

presentation explores the pivotal role of animal feed in ensuring food safety and halal compliance. It emphasizes the importance of ingredient sourcing, preventing cross-contamination, and adhering to both religious and regulatory standards. Key issues discussed include the use of non-halal by-products, contamination during feed processing, and the challenges of traceability in complex global supply chains. By integrating halal assurance with established food safety protocols, the feed industry can significantly contribute to maintaining consumer confidence and product integrity from farm to fork.

Keywords: *Halal animal feed, Food safety, Halal compliance, Traceability, HACCP*

HRANA ZA ŽIVOTINJE IZMEĐU SIGURNOSTI HRANE I HALAL USKLAĐENOSTI: KA JEDINSTVENOM OKVIRU ZA OSIGURANJE POVJERENJA I INTEGRITETA OD FARME DO TANJIRA

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SAŽETAK

Kvalitet i sigurnost hrane za životinje direktno utiču na sigurnost i integritet prehrambenih proizvoda životinjskog porijekla namijenjenih ljudskoj potrošnji. Sa globalnom populacijom koja se procjenjuje da će do 2050. godine dostići 9,8 milijardi ljudi — uključujući 2,8 milijardi muslimana — zadovoljavanje rastuće potražnje za životinjskim proteinima na siguran, održiv i religijski usklađen način predstavlja globalni prioritet. Rizici u proizvodnji hrane za životinje uključuju nenamjerne opasnosti poput kontaminacije i urođene rizike, kao i namjerne prijetnje poput prevare ili falsifikovanja. Ovi rizici mogu ugroziti zdravlje životinja i dovesti u pitanje halal certifikaciju, što rezultira gubitkom povjerenja potrošača. Međunarodni regulatorni okviri, uključujući Codex Alimentarius i islamsku pravnu praksu, ističu važnost higijene, sljedivosti i segregacije u cilju sprječavanja unakrsne kontaminacije i osiguravanja usklađenosti sa zahtjevima sigurnosti hrane i halal propisima. Integracija Halal sistema osiguranja (HAS) sa dobro uspostavljenim sistemima upravljanja sigurnošću hrane kao što su Analiza opasnosti i kritične kontrolne tačke (HACCP) i Dobre proizvodne prakse (GMP) ključna je za efikasno upravljanje ovim rizicima. Prehrana životinja ima ključnu ulogu u određivanju halal statusa mesa, mliječnih proizvoda i peradi. Upotreba nehalal sastojaka ili prisustvo kontaminanata može ugroziti halal certifikaciju. Ovo zahtijeva rigoroznu provjeru sastojaka, revizije dobavljača i snažnu kontrolu lanca snabdijevanja. Regionalne razlike u regulaciji hrane za životinje značajno utiču na halal usklađenost kroz utjecaj na odobravanje sastojaka, metode procjene rizika i procedure certificiranja. Uprkos značajnom napretku, nedostatak harmonizovanih globalnih halal standarda za hranu za životinje i dalje predstavlja izazov. Kompleksnost međunarodnih lanaca snabdijevanja i nekonzistentna regulatorna primjena otvaraju mogućnosti za slučajnu

kontaminaciju i namjernu prevaru. Postoji hitna potreba za uspostavljanjem univerzalnog ISO standarda za halal hranu za životinje kako bi se omogućio globalno harmonizovani okvir. Takav standard bi unaprijedio transparentnost, podržao fer trgovinu i osigurao dosljednu primjenu halal principa od farme do stola. Također bi potaknuo prihvatanje od strane ekonomija koje nisu muslimanske većine, štiteći sigurnost hrane i vjerske vrijednosti u raznim tržištima. Ova prezentacija istražuje ključnu ulogu hrane za životinje u osiguravanju sigurnosti hrane i halal usklađenosti. Naglašava važnost izvora sastojaka, sprječavanja unakrsne kontaminacije i pridržavanja vjerskih i regulatornih standarda. Ključna pitanja uključuju upotrebu nehalal nusproizvoda, kontaminaciju tokom procesa proizvodnje hrane za životinje i izazove sljedivosti u složenim globalnim lancima snabdijevanja. Integracijom halal osiguranja sa postojećim protokolima sigurnosti hrane, industrija hrane za životinje može značajno doprinijeti održavanju povjerenja potrošača i integriteta proizvoda od farme do stola.

Ključne riječi: Halal hrana za životinje, sigurnost hrane, halal usklađenost, sljedivost, HACCP

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

AWARENESS OF HALAL CERTIFIED PRODUCTS AND SERVICES IN EUROPE

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ABSTRACT

Halal certification has been practiced in Europe for over 40 years, playing a significant role in meeting the needs of Muslim consumers. With the growing Muslim population, workforce, and increasing numbers of tourists from OIC (Organization of Islamic Cooperation) countries, halal food and services have become widely available, particularly in countries like the UK, France, and Germany. The presence of halal-certified products in supermarkets and restaurants has made it easier for Muslims to access items that meet their dietary and religious needs. However, the rapid digitalization and the widespread availability of information have created a complex environment where anyone can interpret halal standards in their own way, often without sufficient expertise or authority. This has led to confusion among consumers, as there is no single, universally accepted halal standard across Europe. Furthermore, the growing number of halal certification bodies and varying requirements across countries further complicate the landscape. This diversity in certification processes can make it difficult for consumers to trust that products and services are genuinely halal. The aim of this paper is to investigate the current state of awareness regarding halal products and services among Muslims in Europe. Through a survey, the research seeks to gain valuable insights into the level of knowledge, understanding, and trust in halal certification among Muslim communities.

Keywords: *halal, awareness, certification, products, services*

SVIJEST O HALAL CERTIFICIRANIM PROIZVODIMA I USLUGAMA U EUROPI

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SAŽETAK

Certificiranje halal proizvoda prakticira se u Europi već više od 40 godina i ima značajnu ulogu u ispunjavanju potreba muslimanskih potrošača. S porastom muslimanske populacije, radne snage te broja turista iz zemalja članica Organizacije islamske suradnje (OIC), halal hrana i usluge postaju sve dostupnije, osobito u zemljama poput Ujedinjenog Kraljevstva, Francuske i Njemačke. Prisutnost halal certificiranih proizvoda u supermarketima i restoranima omogućila je muslimanima lakši pristup proizvodima koji ispunjavaju njihove prehrambene i vjerske zahtjeve. Međutim, brza digitalizacija i široka dostupnost informacija stvorile su složeno okruženje u kojem svatko može tumačiti halal standarde na svoj način, često bez odgovarajuće stručnosti ili ovlaštenja. To je dovelo do zbunjenosti među potrošačima, budući da ne postoji jedinstveni, univerzalno prihvaćen halal standard u Europi. Nadalje, sve veći broj certifikacijskih tijela i različiti zahtjevi u pojedinim zemljama dodatno kompliciraju situaciju. Ova raznolikost u procesima certificiranja potrošačima otežava povjerenje u to da su proizvodi i usluge zaista halal. Cilj ovog rada je istražiti trenutno stanje svijesti o halal proizvodima i uslugama među muslimanima u Europi. Kroz anketu, istraživanje nastoji pružiti vrijedne uvide u razinu znanja, razumijevanja i povjerenja u halal certifikaciju unutar muslimanskih zajednica.

Ključne riječi: Halal, svijest, certificiranje, proizvodi, usluge

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

THE CONNECTION BETWEEN HALAL CERTIFICATION AND EFFECTIVE COMMUNICATION IN THE PROMOTION OF HALAL PRODUCTS

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ABSTRACT

Halal standards and certification play a crucial role in ensuring the quality and safety of food products in accordance with Islamic regulations. Although the global significance of halal certification is well recognized, many consumers in the region remain insufficiently informed about its benefits, which may influence their perception and purchasing decisions. The aim of this paper is to analyze the frequency and strategies of promoting halal-certified products in the region and to evaluate the effectiveness of manufacturers' communication approaches. The research examines the presence of halal promotion across various media, including digital platforms, television, and print media, with a focus on the messages used by manufacturers to communicate the health, ethical, and economic advantages of halal products. The methodology includes content analysis of promotional materials, monitoring consumer engagement, and conducting surveys to better understand consumer perceptions of halal certification. The results indicate that halal products are significantly underrepresented in promotional campaigns compared to conventional food products. Digital media and direct marketing are the most commonly used channels, while traditional media have limited engagement. The analysis shows that consumers respond positively to marketing messages emphasizing health benefits, ethical production, and trust in certification, but also highlights the need for improved communication strategies. It is concluded that there is significant potential to enhance the promotion of halal-certified products through targeted educational campaigns, improvements in the legal framework, and standardization of communication approaches. Greater use of interactive educational tools, such as workshops and online courses, is recommended to enhance consumer understanding and trust in halal certification.

Keywords: *halal certification, effective communication, promotion of halal products, marketing strategies, digital marketing, halal advertising*

VEZA IZMEĐU HALAL CERTIFIKACIJE I EFEKTIVNE KOMUNIKACIJE U PROMOCIJI HALAL PROIZVODA

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SAŽETAK

Halal standardi i certifikacija imaju ključnu ulogu u osiguravanju kvaliteta i sigurnosti prehrambenih proizvoda u skladu s islamskim propisima. Iako je globalni značaj halal certifikacije široko prepoznat, mnogi potrošači u regiji i dalje su nedovoljno informisani o njenim prednostima, što može uticati na njihovu percepciju i odluke pri kupovini. Cilj ovog rada je analizirati učestalost i strategije promocije halal-certificiranih proizvoda u regiji te procijeniti efikasnost komunikacijskih pristupa proizvođača. Istraživanje obuhvata prisutnost halal promocije u različitim medijima, uključujući digitalne platforme, televiziju i štampane medije, s fokusom na poruke koje proizvođači koriste kako bi prenijeli zdravstvene, etičke i ekonomske prednosti halal proizvoda. Metodologija uključuje analizu sadržaja promotivnih materijala, praćenje angažmana potrošača i provođenje anketa radi boljeg razumijevanja percepcije halal certifikacije. Rezultati pokazuju da su halal proizvodi značajno nedovoljno zastupljeni u promotivnim kampanjama u poređenju s konvencionalnim prehrambenim proizvodima. Digitalni mediji i direktni marketing su najčešće korišteni kanali, dok tradicionalni mediji bilježe ograničen angažman. Analiza pokazuje da potrošači pozitivno reaguju na marketinške poruke koje naglašavaju zdravstvene benefite, etičku proizvodnju i povjerenje u certifikaciju, ali istovremeno ukazuje na potrebu za unapređenjem komunikacijskih strategija. Zaključeno je da postoji značajan potencijal za unapređenje promocije halal-certificiranih proizvoda kroz ciljane edukativne kampanje, poboljšanja pravnog okvira i standardizaciju komunikacijskih pristupa. Preporučuje se veća upotreba interaktivnih edukativnih alata, poput radionica i online kurseva, kako bi se poboljšalo razumijevanje i povjerenje potrošača u halal certifikaciju.

Ključne riječi: Halal certifikacija, efikasna komunikacija, promocija halal proizvoda, marketing strategije, digitalni marketing, halal oglašavanje

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

APPLICABILITY OF THE ISO 9001 CLAUSE "RISKS AND OPPORTUNITIES" IN THE HALAL SYSTEM

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ABSTRACT

An organization implementing a HALAL system must manage risks that may affect the HALAL status of the product, the trust of Muslim customers and consumers, compliance with Shariah and legal requirements, and the organization's reputation. The "Risks and Opportunities" clause from the ISO 9001:2015 standard in HALAL management systems helps the organization act preventively to preserve the HALAL integrity of products, ensure compliance with religious and legal requirements, and capitalize on market opportunities. Integrating the ISO 9001 requirements regarding risks and opportunities into the HALAL system enables a systematic approach to ensuring the Shariah compliance of products. This not only fulfills the formal certification requirements but also builds consumer trust, strengthens market position, and improves internal organization and quality management.

Keywords: ISO, halal, risks, opportunities

PRIMJENJIVOST ISO 9001 POGLAVLJA "RIZICI I PRILIKE" U HALAL SISTEMU

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SAŽETAK

Organizacija koja implementira HALAL sistem mora upravljati rizicima koji mogu uticati na HALAL status proizvoda, povjerenje kupaca i potrošača muslimanske vjere, usklađenost sa zahtjevima šerijata i zakonskim zahtjevima i reputaciju organizacije. „Rizici i prilike“ iz standarda ISO 9001:2015 u HALAL sistemima upravljanja pomaže organizaciji da preventivno djeluje u očuvanju HALAL integriteta proizvoda, osigura usklađenost s religijskim i zakonskim zahtjevima, te iskoristi tržišne šanse. Integracija ISO 9001 zahtjeva o rizicima i prilikama u HALAL sistem omogućava sistemski pristup osiguranju šerijatske ispravnosti proizvoda. Time se ne samo ispunjavaju formalni zahtjevi certifikacije, već se i gradi povjerenje potrošača, jača tržišna pozicija, te unapređuje interna organizacija i upravljanje kvalitetom.

Ključne riječi: ISO, halal, rizici, prilike

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

IDENTIFICATION AND DIFFERENCE BETWEEN NON CONFORMED AND HARAM PRODUCTS IN THE HALAL FOOD INDUSTRY

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ABSTRACT

Today's food industry follows development and improves in every segment in terms of new technological achievements, innovations, as well as new ways of processing and producing food products. Given that there have been significant incidents with food in the world in the past few decades, special attention is first of all paid to a safe and health-safe product. With the progress of the industry, new possibilities and opportunities have opened up for the development of new or improvement of existing products, but also a certain space for manipulations and frauds with food. Due to a better position on the market and competitiveness, food manufacturers are reaching for cheaper and easier solutions, and thus consciously or unconsciously questioning the compliance of the product with the prescribed declaration. Questions and challenges are often raised in the field for certain industries on how to differentiate between haram products and non-conformed products. In certain segments, the matter is very clear and the difference between haram and halal products is known, however there are specific cases where it is very difficult and still insufficiently clarified whether a non-compliant product is automatically haram. An example of the dairy industry, where milk processing is carried out in a closed system under strictly controlled conditions, where there is a possibility of mixing process steam with milk in the event of a failure in certain parts of the system without being noticed during production. Such a product does not conformed with the prescribed declaration and is considered a non-conformed product due to the increased water content in it, but at the same time that product is not haram because it is healthy and safe for consumption. The manufacturer's intention was not to deceive the customer, but the mistake happened. Also, producers of honey and honey products have big problems due to the increasing occurrence of adulteration and falsification of honey. Although all the ingredients used are halal, such a product is unquestionably non-conformed. Taking all the facts into account, it is important to make clear distinctions and guidelines, primarily for the correct identification and differentiation of types of products that are marked as a non-conformed product, but can be used if it is a healthy and safe product for consumption.

Key words: *identification, haram products, non-conformed product*

IDENTIFIKACIJA I RAZLIKA IZMEĐU NEUSAGLAŠENIH I HARAM PROIZVODA U HALAL PREHRAMBENOJ INDUSTRIJI

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SAŽETAK

Današnja prehrambena industrija prati razvoj i unapređuje se u svakom segmentu kada je riječ o novim tehnološkim dostignućima, inovacijama, kao i novim načinima prerade i proizvodnje prehrambenih proizvoda. S obzirom na to da su se u posljednjih nekoliko decenija u svijetu dogodili značajni incidenti vezani za hranu, posebna pažnja se prvenstveno posvećuje sigurnom i zdravstveno ispravnom proizvodu. Sa napretkom industrije otvorile su se nove mogućnosti za razvoj novih ili unapređenje postojećih proizvoda, ali i određeni prostor za manipulacije i prevare s hranom. Zbog bolje pozicije na tržištu i konkurentnosti, proizvođači hrane posežu za jeftinijim i jednostavnijim rješenjima, te tako svjesno ili nesvjesno dovode u pitanje usklađenost proizvoda s propisanom deklaracijom. Često se postavljaju pitanja i izazovi na terenu kod određenih industrija o tome kako razlikovati haram proizvode od neusaglašenih proizvoda. U određenim segmentima stvar je vrlo jasna i razlika između haram i halal proizvoda je poznata, međutim postoje specifični slučajevi u kojima je vrlo teško i još uvijek nedovoljno razjašnjeno da li je neusaglašen proizvod automatski haram. Primjer je mljekarska industrija, gdje se prerada mlijeka obavlja u zatvorenom sistemu pod strogo kontroliranim uslovima, pri čemu postoji mogućnost miješanja procesne pare s mlijekom u slučaju kvara u određenim dijelovima sistema, a da to tokom proizvodnje ne bude primijećeno. Takav proizvod nije u skladu s propisanom deklaracijom i smatra se neusaglašenim proizvodom zbog povećanog sadržaja vode, ali istovremeno taj proizvod nije haram jer je zdrav i siguran za konzumaciju. Namjera proizvođača nije bila da prevari kupca, već je došlo do greške. Također, proizvođači meda i proizvoda od meda imaju velike probleme zbog sve učestalijih slučajeva patvorenja i falsifikovanja meda. Iako su svi korišteni sastojci halal, takav proizvod je nesumnjivo neusaglašen. Uzimajući u obzir sve činjenice, važno je napraviti jasne razlike i smjernice, prvenstveno za ispravnu identifikaciju i razlikovanje vrsta proizvoda koji se označavaju kao neusaglašeni proizvodi, ali se mogu koristiti ukoliko su zdravstveno ispravni i sigurni za konzumaciju.

Ključne riječi: identifikacija, haram proizvodi, neusaglašen proizvod

CHAPTER

HALAL IN MEDICINE AND PHARMAACUTICALS

HALAL U MEDICINI I FARMACIJI

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

SYNTHESIS AND CHARACTERIZATION OF CAPSULE SHELL FORMULATION USING KAPPA CARRAGEENAN AS AN ALTERNATIVE HALAL BINDER

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ABSTRACT

Introduction: The use of gelatin derived from animal sources in capsule shell production has raised concerns among various populations, including Muslims, Jews, Hindus, vegetarians, and others who adhere to dietary restrictions based on religious or cultural beliefs. To address this issue, the development of plant-based and halal capsule shells has emerged as an alternative solution. Kappa carrageenan, with its desirable solubility, viscosity, and gelling properties, stands out as a promising option for capsule shell formulation.

Objective(s): This study aims to investigate the antimicrobial properties of synthetic kappa carrageenan and formulate capsule shells using synthetic kappa carrageenan by testing various formulations. The formulated capsule shells are evaluated based on their physicochemical properties.

Methodologies: The Kirby-Bauer Disc Diffusion Method is used to assess the antimicrobial activity of synthetic kappa carrageenan. Hard-shell capsules are prepared using the dipping method. The capsule shell formulation consists of synthetic kappa carrageenan, sorbitol, starch, and distilled water. The formulated capsule shells are then evaluated in terms of appearance, weight variation, dissolution, disintegration, swelling degree, and water content.

Results: The study found that synthetic kappa carrageenan did not exhibit antimicrobial activity at various concentrations. However, when used as a binder, synthetic kappa carrageenan demonstrated excellent binding properties. Formulation F13 emerged as the most promising, meeting industry standards for appearance, weight variation, water content, and disintegration time. F13 also had the lowest swelling degree, indicating controlled drug release properties. All tested formulations achieved complete drug release by the 45th minute.

Conclusion: Kappa carrageenan shows promise as a plant-based binder in capsule shells, offering a viable alternative to gelatin. While the synthetic kappa carrageenan used in this study did not exhibit antimicrobial properties, its physicochemical properties make it a suitable option for capsule formulation.

Further research should focus on optimizing kappa carrageenan concentrations and exploring natural sources to enhance its properties and applications in the pharmaceutical industry.

Keywords: *Kappa carrageenan, halal pharmaceutical, gelatin, capsule*

SINTEZA I KARAKTERIZACIJA FORMULACIJE KAPSULNE OVOJNICE KORIŠTENJEM KAPPA-KARAGENANA KAO ALTERNATIVNOG HALAL VEZIVA

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SAŽETAK

Uvod: Upotreba želatine životinjskog porijekla u proizvodnji kapsulnih ovojnica izaziva zabrinutost kod različitih populacija, uključujući muslimane, Jevreje, hinduse, vegetarijance i druge koji se pridržavaju prehrambenih ograničenja temeljenih na vjerskim ili kulturnim uvjerenjima. Kako bi se riješio ovaj problem, razvijene su kapsule biljnog porijekla i halal kapsule kao alternativno rješenje. Kappa karagenan, zahvaljujući svojoj topljivosti, viskoznosti i sposobnosti geliranja, ističe se kao obećavajuća opcija za formulaciju kapsulnih ovojnica.

Cilj(evi): Ova studija ima za cilj ispitati antimikrobna svojstva sintetskog kappa karagenana i formulirati kapsulne ovojnice koristeći različite formulacije sa sintetskim kappa karagenanom. Formulirane kapsule se procjenjuju na osnovu njihovih fizičko-hemijskih osobina.

Metodologija: Za procjenu antimikrobne aktivnosti sintetskog kappa karagenana koristi se Kirby-Bauer metoda difuzije na disku. Kapsule sa čvrstom ovojnicom pripremaju se metodom uranjanja. Formulacija kapsulne ovojnice sastoji se od sintetskog kappa karagenana, sorbitola, skroba i destilovane vode. Formulirane kapsule se zatim analiziraju prema izgledu, varijaciji mase, rastvorljivosti, disoluciji, stepenu bubrenja i sadržaju vode.

Rezultati: Studija je pokazala da sintetski kappa karagenan ne pokazuje antimikrobnu aktivnost pri različitim koncentracijama. Ipak, kao vezivo, pokazao je izvrsna svojstva vezivanja. Formulacija F13 se pokazala najuspješnijom, ispunjavajući industrijske standarde u pogledu izgleda, varijacije mase, sadržaja vode i vremena disintegracije. F13 je također imala najniži stepen bubrenja, što ukazuje na kontrolisana svojstva otpuštanja lijeka. Sve testirane formulacije postigle su potpuno otpuštanje lijeka do 45.minute.

Zaključak: Kappa karagenan pokazuje potencijal kao biljno vezivo u kapsulnim ovojnicama i predstavlja održivu alternativu želatini. Iako sintetski kappa karagenan korišten u ovoj studiji

nije imao antimikrobna svojstva, njegova fizičko-hemijska svojstva ga čine pogodnim za farmaceutsku primjenu. Dalja istraživanja trebaju se fokusirati na optimizaciju koncentracija kappa karagenana i ispitivanje prirodnih izvora kako bi se poboljšala njegova svojstva i proširila primjena u farmaceutskoj industriji.

Ključne riječi: *Kappa karagenan, halal farmaceutika, želatina, kapsula*

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

LIFESTYLOPATHY AND HALALOPATHY: A HOLISTIC APPROACH TO ETHICAL AND PERSONALIZED HEALTHCARE

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ABSTRACT

As modern medicine embraces personalized, ethical, and lifestyle-compatible healthcare, integrating faith-based principles with scientific advancements is increasingly essential. This manuscript explores Lifestylopathy, along with its specialized subset Halalopathy, as holistic healthcare models that align medical interventions with biological function, ethical values, and religious compliance. Lifestylopathy focuses on disease prevention and healing by regulating homeostasis, energy balance, and therapeutic-lifestyle compatibility, ensuring that medicine works in harmony with an individual's nutrition, genetics, and well-being. Halalopathy, as an extension, ensures that pharmaceuticals comply with Halal and Tayyib standards, maintaining purity, lawful consumption, and ethical sourcing while upholding scientific efficacy and regulatory compliance. The discussion examines Lifestylopathy's connection to epigenetics, demonstrating how diet, stress management, and spiritual well-being influence gene expression. It further explores Halal pharmaceutical development, focusing on ingredient selection, ethical certification, and regulatory standardization. Additionally, it highlights lifestyle-therapeutic drug compatibility, emphasizing how faith-conscious healthcare models enhance patient trust, compliance, and therapeutic outcomes. By addressing challenges in Halal pharmaceutical standardization, global regulations, and biotechnology-driven innovations, this manuscript presents a structured approach to integrating Halal-certified pharmaceuticals into mainstream healthcare, ensuring faith-conscious consumers have access to ethical, effective, and personalized medical solutions.

As modern medicine embraces personalized, ethical, and lifestyle-compatible healthcare, integrating faith-based principles with scientific advancements is increasingly essential. This manuscript explores Lifestylopathy,

Keywords: *Lifestylopathy, Halalopathy, Personalized Medicine, Epigenetics, Halal Pharmaceuticals*

STILOPATIJA I HALALOPATIJA: HOLISTIČKI PRISTUP ETIČKOJ I PERSONALIZIRANOJ ZDRAVSTVENOJ ZAŠTITI

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SAŽETAK

Kako savremena medicina sve više prihvata personalizirani, etički i sa stilom života usklađeni pristup zdravlju, integracija vjerskih načela s naučnim dostignućima postaje sve važnija. Ovaj rukopis istražuje koncept „lajfstilopatije“ (Lifestylopathy), zajedno s njenim specijaliziranim podskupom „halalopatije“ (Halalopathy), kao holističke modele zdravstvene zaštite koji usklađuju medicinske intervencije s biološkim funkcijama, etičkim vrijednostima i vjerskom usklađenošću. Lajfstilopatija se fokusira na prevenciju bolesti i iscjeljenje putem regulacije homeostaze, energetske ravnoteže i kompatibilnosti terapije sa stilom života, osiguravajući da medicina djeluje u skladu s ishranom, genetikom i općim blagostanjem pojedinca. Halalopatija, kao njena proširena grana, osigurava da farmaceutski proizvodi ispunjavaju Halal i Tayyib standarde, čuvajući čistoću, zakonitost konzumacije i etički izvor, uz zadržavanje naučne efikasnosti i regulatorne usklađenosti. Diskusija se bavi vezom lajfstilopatije s epigenetikom, pokazujući kako ishrana, upravljanje stresom i duhovno blagostanje utiču na ekspresiju gena. Nadalje, istražuje se razvoj halal farmaceutike, s fokusom na izbor sastojaka, etičku certifikaciju i standardizaciju prema regulativama. Dodatno, naglašava se kompatibilnost lijekova sa stilom života, ističući kako modeli zdravstvene zaštite koji uvažavaju vjeru povećavaju povjerenje pacijenata, njihovu usklađenost s terapijom i njenu efikasnost. Rukopis se također bavi izazovima u standardizaciji halal farmaceutike, globalnim regulativama i inovacijama vođenim biotehnologijom, te predstavlja strukturirani pristup integraciji halal-certificiranih lijekova u konvencionalni zdravstveni sistem, osiguravajući da potrošači koji vode računa o vjeri imaju pristup etičkim, djelotvornim i personaliziranim medicinskim rješenjima.

Ključne riječi: *Lajfstilopatija, halalopatija, personalizirana medicina, epigenetika, halal farmaceutski proizvodi*

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

HALAL STATUS OF ACTIVE SUBSTANCE AND EXCIPIENTS IN INSULINS

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ABSTRACT

Introduction: Clarifying the chemistry of insulin, its extraction, and bioengineered synthesis has contributed significantly to improving health outcomes and reducing mortality among individuals with Type I and Type II Diabetes Mellitus.

Aim and Objective of the Paper: The aim and objective of this paper is to collect, systematize, and analyze existing information regarding insulin production in order to identify and clarify potential haram (Islamically prohibited) components.

Results and Discussion: Haram substances in insulin production can raise ethical, religious, and medical concerns. From a theological standpoint, Islamic legal schools have issued views on the permissibility of using medications containing haram ingredients under the principle of necessity (darura), in alignment with the principle of preserving life (hifz al-nafs). In this context, insulin is generally considered halal in all forms, as it is an irreplaceable life-saving medication. From a purely technical perspective, the origin of raw materials and the technological process define the halal status of insulin. Initially, insulin was extracted from porcine or bovine pancreas. When derived from bovine sources, it was clearly accepted as halal. In recent decades, insulin is primarily available in recombinant form, produced via genetic modification of microorganisms, most commonly *Escherichia coli* bacteria or *Saccharomyces cerevisiae* yeast. This technology has enabled safer and more efficient production without reliance on animal sources. However, even in this method, haram components may be present in the growth media, extraction and purification processes, excipients, or substances in contact with the final insulin product. The theological debate continues regarding the haram status of genetic modification itself. In Islamic pharmaceutical ethics, haram excipients are substances prohibited under Islamic law—most commonly due to origins in pork, alcohol, or other impure (najis) materials. Common excipients in insulin formulations include glycerol, ethanol, gelatin, stearic acid, magnesium stearate, phenol, and meta-cresol, all of which may potentially be considered haram depending on their source. The substrates used for the cultivation of genetically modified microorganisms in insulin production include liquid nutrient media containing: a carbon source—usually glucose or glycerol; a nitrogen source—e.g., ammonium salts, peptones; yeast extract; minerals such as magnesium, phosphorus, iron, zinc; and vitamins—particularly in yeast-based processes. Antibiotics (e.g., ampicillin) may also be used to maintain selective pressure for microorganisms containing the insulin gene plasmid. These media enable rapid microbial growth in bioreactors and enhanced insulin production.

Conclusion: Halal-certified insulin products remain relatively rare, but some manufacturers do offer such options. Particular emphasis should be placed on the role of pharmacists and healthcare providers in educating and ethically advising patients, as well as the need to develop halal pharmaceutical sciences as an interdisciplinary field.

Keywords: *insulin, halal status*

HALAL STATUS DJELATNE TVARI I EKCIPIENASA U INZULINIMA

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SAŽETAK

Uvod: Rasvjetljavanje hemije inzulina, njegove ekstrakcije i bioinženjerske sinteze pomoglo je poboljšanju zdravlja i smanjenju smrtnosti osoba oboljelih od Dijabetes melitusa tipa I i II.

Cilj i zadatak rada: Cilj i zadatak rada je na osnovi prikupljanja, sistematizacije i analize postojećih informacija o proizvodnji inzulina definirati i pojasniti potencijalne haram sastojke.

Rezultati i diskusija: Haram supstance u proizvodnji inzulina mogu izazivati etičko, vjersko i medicinsko pitanje. S teološkog aspekta postoje stavovi islamskih pravnih škola o dozvoljenosti korištenja lijekova s haram sastojcima u kontekstu nužnosti (darura), uz poštivanje principa očuvanja života (hifz al-nafs). U tom pogledu, obzirom da se koristi kao nezamjenjivi lijek inzulin je, najčešće, u svim formama halal. Sa čisto tehničkog aspekta, porijeklo ulaznih komponenti i tehnološki postupak definiraju halal status inzulina. U početku se inzulin dobivao iz svinjske ili goveđe gušterače. Kad je bio goveđeg porijekla bio je definitivno prihvatljiv kao halal. Posljednjih desetljeća prisutan je uglavnom kao rekombinantni inzulin, dobijen genetskom modifikacijom mikroorganizama, najčešće bakterije *Escherichia coli* ili kvasca *Saccharomyces cerevisiae*. Ova tehnologija omogućila je sigurniju i efikasniju proizvodnju, bez potrebe za životinjskim izvorima. I u ovoj tehnologiji, mogu biti prisutne haram komponente iz podloge za razvoj mikroorganizama, postupka ekstrakcije i prečišćavanja, upotrebe ekscipijensa te sastojaka u kontaktu sa dobijenim inzuliom. Sa teološkog aspekta još uvijek se diskutira o haram statusu genetske modifikacije. U islamskoj farmaceutici, "haram" ekscipijensi su sastojci koji su zabranjeni po islamskim zakonima – najčešće zbog porijekla iz svinjetine, alkohola ili drugih nečistih (najis) tvari. Najčešći ekscipijensi u inzulinima su glicerol, etanol, želatina, stearinska kiselina, magnesium stearat, fenol, metakrezol koji potencijalno mogu imati haram status. Kao supstratza razmnožavanje genetski modificiranih mikroorganizama u proizvodnji inzulina koriste se tekući nutritivni mediji koji sadrže: izvor ugljika – najčešće glukoza ili glicerol; izvor dušika – npr. amonijeve soli, peptoni; kvasni ekstrakt; minerali kao što su magnezij, fosfor, željezo, cink; vitamini – u nekim slučajevima, posebno kod kvasaca; antibiotik kako bi se održala selekcija samo onih mikroorganizama koji sadrže plazmid s inzulinskim genom (npr. ampicilin). Ovi mediji omogućuju brzo umnožavanje mikroorganizama u bioreaktorima i povećanu proizvodnju inzulina.

Zaključak: Halal certificirani inzulini su još uvijek rijetki, ali postoje pojedini proizvođači koji nude takve opcije. Poseban akcent se stavlja na ulogu farmaceuta i ljekara u informiranju i etičkom savjetovanju pacijenata, kao i potrebu za razvojem halal farmacije kao interdisciplinarnog pristupa.

Ključne riječi: *inzulin, halal status*

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

DEVELOPING A HALAL BUILT-IN WORK SYSTEM FOR PHARMACEUTICAL MANUFACTURING

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ABSTRACT

Halal built-in is a systematic approach which integrates the requirement of halal in all aspect of manufacturing from research and development to raw material sourcing until delivery of finished products. It is a concept that is still under-developed and not a well-established in the pharmaceutical sciences industry despite the establishment of the MS 2424:2012, Malaysian Standard in Halal Pharmaceuticals-General Guidelines in 2012. Despite the introduction of the *MS 2424:2012 Malaysian Standard on Halal Pharmaceuticals*, its implementation remains inconsistent due to fragmented guidelines, a lack of integration between regulatory and Shariah principles, and an absence of a comprehensive work system framework. This qualitative case study investigates current *Halal Built-In* practices in Malaysia's pharmaceutical industry, identifies key Shariah-compliant references, explores challenges in its adoption, and proposes an integrated work system framework. Data collection involved semi-structured interviews with four key stakeholder groups: fiqh scholars, JAKIM certification officers, Ministry of Health (MoH) regulators, and pharmaceutical industry representatives. Using *Steven Alter's Work System Method*, nine critical elements—process, information, participants, technologies, products, customers, environment, infrastructure, and strategies—were analyzed through thematic analysis. Findings reveal varying levels of understanding and differing priorities among stakeholders. Fiqh scholars emphasize Shariah compliance and raw material purity, while MoH regulators focus on labeling policies and consumer preferences. Meanwhile, JAKIM officers and industry players demonstrate a more comprehensive grasp of halal certification requirements but highlight gaps in technical knowledge among manufacturers. Key challenges include the absence of a dedicated *Halal Act*, misalignment between regulatory policies and halal requirements, and limited cross-disciplinary collaboration. To address these challenges, the study proposes a *Halal Built-In Work System Framework*, integrating Islamic principles with operational efficiency, ethical values, and regulatory compliance. This framework offers a structured approach for pharmaceutical companies to seamlessly implement halal requirements, ensuring

both compliance and market competitiveness. Ultimately, the study underscores the growing importance of a holistic *Halal Built-In* system in strengthening Malaysia's position as a global leader in halal pharmaceuticals.

Keywords: *Halal Built-In, Halal Pharmaceuticals, Work System Framework, Halal Certification, Shariah Compliance*

IZRADA HALAL-INTEGRISANOG SISTEMA RADA ZA FARMACEUTSKU PROIZVODNJU

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SAŽETAK

Halal Built-In predstavlja sistematski pristup koji integriše zahtjeve halala u sve aspekte proizvodnje – od istraživanja i razvoja, preko nabavke sirovina, pa sve do isporuke gotovih proizvoda. Iako je u Maleziji 2012. godine uspostavljen standard MS 2424:2012 – Malezijski standard za halal farmaceutske proizvode: Opće smjernice, ovaj koncept i dalje nije dovoljno razvijen niti u potpunosti prihvaćen u farmaceutskoj industriji. Uprkos postojanju navedenog standarda, njegova primjena ostaje nedosljedna zbog fragmentiranih smjernica, nedostatka integracije između regulatornih i šerijatskih principa, te odsustva sveobuhvatnog radnog okvira. Ova kvalitativna studija istražuje postojeće prakse Halal Built-In pristupa u farmaceutskoj industriji Malezije, identifikuje ključne šerijatski usklađene izvore, analizira izazove u implementaciji i predlaže integrisani okvir radnog sistema. Prikupljanje podataka obavljeno je kroz polustrukturirane intervju s četiri ključne grupe dionika: učenjacima fikha, službenicima za halal certifikaciju iz JAKIM-a, regulatorima iz Ministarstva zdravstva (MoH) i predstavnicima farmaceutske industrije. Koristeći Steven Alter-ovu metodu radnog sistema, analizirano je devet ključnih elemenata: procesi, informacije, učesnici, tehnologije, proizvodi, korisnici, okruženje, infrastruktura i strategije, primjenom tematske analize. Rezultati pokazuju različite nivoe razumijevanja i različite prioritete među dionicima. Učenjaci fikha ističu važnost šerijatske usklađenosti i čistoće sirovina, dok regulatori iz Ministarstva zdravstva naglasak stavljaju na politiku označavanja proizvoda i preferencije potrošača. S druge strane, službenici JAKIM-a i industrijski akteri pokazuju šire razumijevanje zahtjeva halal certifikacije, ali ukazuju na nedostatke u tehničkom znanju proizvođača. Ključni izazovi uključuju nepostojanje posebnog Zakona o halalu, neusaglašenost regulatornih politika s halal zahtjevima te ograničenu saradnju između različitih disciplina. Kao odgovor na te izazove, studija predlaže Halal Built-In okvir radnog sistema koji integriše islamske principe s operativnom efikasnošću, etičkim vrijednostima i regulatornom usklađenošću. Ovaj okvir nudi strukturirani pristup farmaceutskim kompanijama za dosljednu implementaciju halal zahtjeva, čime se osigurava i usklađenost i konkurentnost na tržištu. U

konačnici, studija naglašava sve veći značaj sveobuhvatnog Halal Built-In sistema za jačanje pozicije Malezije kao globalnog lidera u halal farmaceutskoj industriji.

Ključne riječi: *Halal Built-In, halal farmaceutski proizvodi, okvir radnog sistema, halal certifikacija, šerijatska usklađenost*

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

NUTRITIONAL HABITS OF RESPONDENTS WHO CONSUME ONLY HALAL FOOD AGED 30–60 IN THE TUZLA CANTON

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ABSTRACT

A proper and healthy diet should be a priority for individuals who consume only halal food to reduce the risk of diseases linked to poor dietary habits. However, a fast-paced lifestyle has led to the neglect of nutrition, causing deviations from proper halal nutrition dietary principles. Halal nutrition is not just about choosing permissible foods but also about their proper preparation and consumption in line with health and well-being principles. The aim of this study was to determine the dietary habits of consumers who exclusively consume halal food and to analyze the extent to which these habits align with the principles and recommendations of halal nutrition. The research methodology involved the collection and analysis of data through an online questionnaire distributed among respondents aged 30 to 60 from the Tuzla Canton. The study results revealed significant deviations in the application of proper halal nutrition among a large number of respondents. The analysis of responses showed that a considerable number of respondents do not pay sufficient attention to nutritional balance and dietary diversity, while many reported only occasionally considering the nutritional aspect of their diet. This indicates that halal nutrition is often perceived solely through the lens of food permissibility. Additionally, the results demonstrated that most respondents only occasionally pay attention to moderation in food consumption. These findings suggest a lack of awareness regarding the importance of moderation as a fundamental principle of halal nutrition. The findings highlight the need for further education on the principles of proper halal nutrition to improve understanding and application. The gap between theoretical knowledge and practical implementation suggests opportunities for further research and educational initiatives. This study can serve as a foundation for broader research on the dietary habits of the halal population and the factors influencing their food choices.

Keywords: *proper halal nutrition, nutritional intake, dietary habits*

PREHRAMBENE NAVIKE ISPITANIKA KOJI KONZUMIRAJU ISKLJUČIVO HALAL HRANU, STAROSTI 30–60 GODINA U TUZLANSKOM KANTONU

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SAŽETAK

Pravilna i zdrava ishrana treba biti prioritet za osobe koje konzumiraju isključivo halal hranu, kako bi se smanjio rizik od bolesti povezanih s lošim prehrambenim navikama. Međutim, ubrzan tempo života doveo je do zanemarivanja pravilne ishrane, što je uzrokovalo odstupanja od principa ispravne halal ishrane. Halal ishrana nije samo odabir dozvoljene hrane, već i njena pravilna priprema i konzumacija u skladu s principima zdravlja i dobrobiti. Cilj ove studije bio je utvrditi prehrambene navike potrošača koji konzumiraju isključivo halal hranu te analizirati u kojoj mjeri te navike odgovaraju principima i preporukama halal ishrane. Metodologija istraživanja obuhvatila je prikupljanje i analizu podataka putem online upitnika distribuiranog među ispitanicima starosti od 30 do 60 godina iz Tuzlanskog kantona. Rezultati studije pokazali su značajna odstupanja u primjeni pravilne halal ishrane kod velikog broja ispitanika. Analiza odgovora ukazala je da značajan broj ispitanika ne obraća dovoljnu pažnju na nutritivnu ravnotežu i raznolikost u ishrani, dok mnogi navode da samo povremeno uzimaju u obzir nutritivne aspekte svoje prehrane. Ovo ukazuje na to da se halal ishrana često doživljava isključivo kroz prizmu dozvoljenosti hrane. Također, rezultati su pokazali da većina ispitanika samo povremeno vodi računa o umjerenosti u konzumaciji hrane. Ovi nalazi ukazuju na nedostatak svijesti o važnosti umjerenosti kao osnovnog principa halal ishrane. Dobiveni rezultati naglašavaju potrebu za dodatnim edukacijama o principima pravilne halal ishrane kako bi se unaprijedilo razumijevanje i primjena. Jaz između teorijskog znanja i praktične primjene sugerije mogućnosti za daljnja istraživanja i obrazovne inicijative. Ova studija može poslužiti kao osnova za šira istraživanja prehrambenih navika halal populacije i faktora koji utiču na njihove prehrambene izbore.

Ključne riječi: *pravilna halal ishrana, nutritivni unos, prehrambene navike*

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

HALAL ETHICS IN MEDICAL PRACTICE

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ABSTRACT

Introduction: Halal ethics in medical practice refers to the application of Islamic ethical principles and Sharia regulations in the field of healthcare. It is based on the primary sources of Islam: the Qur'an, Sunnah, ijma (consensus), and qiyas (analogical reasoning), while being harmonized with the principles of contemporary bioethics.

Objective: The aim of this paper is to present the key aspects of halal ethics and its application in modern medical practice, based on relevant scientific knowledge.

Results and Discussion: The fundamental principles of halal ethics emphasize the preservation of physical, mental, and social health, with the protection and saving of human life (ḥifz al-nafs) having the highest priority. Halal ethics also encompasses humane and empathetic communication, respect for patient autonomy, and the right to informed consent and decision-making. Medications should, wherever possible, be free from haram ingredients, which increases the need for halal certification of pharmaceutical products. However, the use of haram substances is permitted in cases of necessity (darura), particularly when no halal alternative exists. Organ transplantation is allowed under strict ethical conditions — with the donor's consent and a prohibition on commercialization. Genetic and biotechnological interventions are acceptable if they have therapeutic purposes and do not violate human dignity or the natural order (fitrah). Euthanasia is considered impermissible, while withdrawal of life support may be considered in cases of confirmed brain death. Due to the frequent overlap of religious and medical issues in practice, as well as the need to better respect patient rights, continuous education of healthcare professionals on the principles of halal ethics is essential.

Conclusion: Halal ethics in medicine represents a comprehensive framework that ensures the alignment of medical practice with Islamic moral, spiritual, and legal norms. It supports the development of therapies that are modern, ethically acceptable, and Sharia-compliant, thereby contributing to a higher quality and culturally sensitive healthcare system in the contemporary context.

Key words: *halal ethics, medical practice*

HALAL ETIKA U MEDICINSKOJ PRAKSI

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SAŽETAK

Uvod: Halal etika u medicinskoj praksi podrazumijeva primjenu islamskih etičkih načela i šerijatskih propisa u području zdravstvene zaštite. Temelji se na izvorima islama: Kur'anu, Sunnetu, idžmi i kijasu – uz usklađivanje s principima savremene bioetike.

Cilj rada: Cilj rada je, na osnovu relevantnih naučnih saznanja, predstaviti ključne aspekte halal etike i njenu primjenu u savremenoj medicinskoj praksi.

Rezultati i rasprava: Temeljna načela halal etike naglašavaju očuvanje tjelesnog, mentalnog i socijalnog zdravlja, pri čemu spašavanje i zaštita ljudskog života (ḥifz al-nafs) imaju najviši prioritet. Etika halala uključuje i humanu, empatičnu komunikaciju, poštovanje autonomije pacijenta te njegovo pravo na informirani pristanak i donošenje odluka. Lijekovi bi, gdje god je moguće, trebali biti bez haram sastojaka, čime raste potreba za halal certifikacijom farmaceutskih proizvoda. Ipak, primjena haram supstanci dopuštena je u slučaju nužde (zaruret) i to kada nema halal alternative. Transplantacija organa dozvoljena je pod strogim etičkim uslovima – uz pristanak donora i zabranu komercijalizacije. Genetske i biotehnološke intervencije su prihvatljive ako imaju terapijski cilj i ne narušavaju ljudsko dostojanstvo ili prirodni red (fitrah). Eutanazija se smatra nedozvoljenom, dok se prekid aparatskog održavanja života može razmatrati u slučaju potvrđene moždane smrti. Upravo zbog čestog preplitanja vjerskih i medicinskih pitanja u praksi, te kvalitetnijeg postivanja prava šacijenata, neophodna je kontinuirana edukacija zdravstvenog osoblja o principima halal etike.

Zaključak: Halal etika u medicini predstavlja sveobuhvatan okvir koji osigurava usklađenost medicinske prakse s islamskim moralnim, duhovnim i pravnim normama. Ona podržava razvoj terapija koje su istovremeno savremene, etički prihvatljive i šerijatski dozvoljene, doprinoseći kvalitetnijoj i kulturno osjetljivoj zdravstvenoj zaštiti u savremenom kontekstu.

Ključne riječi: *halal etika, medicinska praksa.*

CHAPTER

HALAL IN COSMETIC INDUSTRY
HALAL U KOZMETIČKOJ INDUSTRIJI

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

HALAL COSMETICS: AN EMERGING PARADIGM IN THE BEAUTY INDUSTRY

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ABSTRACT

About 25 to 30 years ago, the concept of Halal was virtually unheard of within the global cosmetics industry. Today, it has evolved into a significant consideration, driven by the growing demand from Muslim consumers who are increasingly mindful of the products they use on their bodies. Just as dietary habits among Muslims emphasize the importance of Halal and permissible foods, personal care routines are now reflecting the same level of scrutiny. As a result, the market for Halal-certified skincare and makeup products has experienced substantial growth, catering to the needs of Muslim women who seek products that align with their religious and ethical values. One of the primary concerns is the presence of ethanol and other haram (forbidden) ingredients commonly found in conventional cosmetics. Additionally, the entire production process must adhere to strict Halal standards, ensuring that there is no contamination with najis (impure) or haram substances at any stage of manufacturing or handling. In this presentation, we will explore the critical control points in the Halal cosmetics industry, highlighting the essential steps and practices required to maintain Halal integrity. From ingredient sourcing to production and certification, the talk will provide insights into how companies can meet the expectations of discerning Muslim consumers while tapping into this rapidly expanding market.

Keywords: *Halal cosmetics, Muslim consumers, haram ingredients, halal certification, najis contamination, ethics in beauty, market growth, halal standards*

HALAL KOZMETIKA: NOVI PRAVAC U INDUSTRIJI LJEPOTE

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SAŽETAK

Prije otprilike 25 do 30 godina, pojam halal bio je gotovo nepoznat u globalnoj kozmetičkoj industriji. Danas se razvio u značajan faktor, potaknut sve većom potražnjom muslimana potrošača koji sve više vode računa o proizvodima koje koriste na svom tijelu. Baš kao što prehrambene navike kod muslimana naglašavaju važnost halal i dozvoljene hrane, i rutine lične njege sada odražavaju isti nivo pažnje. Kao rezultat toga, tržište halalom certificiranih proizvoda za njegu kože i šminke doživjelo je značajan rast, odgovarajući na potrebe muslimanki koje traže proizvode u skladu sa svojim vjerskim i etičkim uvjerenjima. Jedna od glavnih briga jeste prisutnost etanola i drugih haram (zabranjenih) sastojaka koji se često nalaze u konvencionalnoj kozmetici. Osim toga, cijeli proizvodni proces mora se odvijati u skladu sa strogim halal standardima, čime se osigurava da ne dođe do kontaminacije s nečistim (najis) ili haram supstancama u bilo kojoj fazi proizvodnje ili rukovanja. U ovoj prezentaciji istražiti ćemo ključne kontrolne tačke u halal kozmetičkoj industriji, ističući osnovne korake i prakse potrebne za očuvanje halal integriteta. Od nabavke sastojaka do proizvodnje i certificiranja, izlaganje će pružiti uvid u to kako kompanije mogu ispuniti očekivanja zahtjevnih muslimana potrošača i istovremeno iskoristiti potencijal ovog brzo rastućeg tržišta.

Ključne riječi: *halal kozmetika, muslimani potrošači, haram sastojci, halal certificiranje, najis kontaminacija, etika u ljepoti, rast tržišta, halal standardi*

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

EXPLORING HALAL COSMETICS: *MORUS NIGRA* AS AN ALTERNATIVE TO HALAL COLORING IN LIPSTICK AND ANTIMICROBIAL CREAM FORMULATIONS

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ABSTRACT

The demand for halal-certified cosmetics has significantly increased due to consumer awareness of ethical, safe, and Shariah-compliant ingredients. Conventional cosmetic colorants often raise concerns regarding their synthetic origin, potential toxicity, and non-halal sources. *Morus nigra* (*M. nigra*), or black mulberry, is a flowering plant native to southwestern Asia, valued for its nutritious fruits with antioxidant, anti-inflammatory, and antibacterial properties. The high anthocyanin content in *M. nigra* provides an intense natural pigment of suitable for cosmetic applications while offering antioxidant and antimicrobial properties. The aim of this study is to explore *M. nigra* extract as a natural halal alternative for lipstick coloring and antimicrobial cream formulations. *M. nigra* was extracted using a maceration method. Antimicrobial cream and lipstick containing *M. nigra* extract were formulated using halal-certified ingredients, supported by relevant documentation, including the Halal Certificate, Certificate of Analysis (CoA), International Nomenclature of Cosmetic Ingredients (INCI), and Material Safety Data Sheet (MSDS). Formulated lipstick and antimicrobial cream were tested using disk diffusion test. The antioxidant properties of *M. nigra* cream and lipstick (5, 10, 15 % W/W) were tested by using DPPH and FRAP method and UV protection properties were tested using SPF test. Furthermore, physicochemical properties of lipstick and antimicrobial cream were also evaluated. The lipstick formulation was assessed for color intensity, pH stability, and texture, while the antimicrobial cream was tested for its antimicrobial activities against *Staphylococcus aureus* and *Pseudomonas aeruginosa*. The results showed that *M. nigra* lipsticks exhibit a purplish red color with a fruity odour. Lipstick has uniform aspect, good spreadability and stable at pH 5.72 to 6.02 making it suitable to be applied onto the lip. *M. nigra* extract (100µg/ml) have great antioxidant activity of 85.86% in DPPH and 2.409 µmol Fe (II)/g in FRAP assay and have UV protection percentage of 37.23% on SPF test. The antimicrobial testing showed that *M. nigra* cream was able to inhibit the growth of *S. aureus* and *P. aeruginosa*. This study highlights *Morus*

nigra as a sustainable, halal-friendly, and bioactive alternative to synthetic dyes and antimicrobial agents in the cosmetic industry. The findings contribute to the development of natural and halal-certified beauty products, catering to the growing market demand.

Keywords: *Halal cosmetics, Morus nigra, natural colorant, antimicrobial cream*

ISTRAŽIVANJE HALAL KOZMETIKE: MORUS NIGRA KAO ALTERNATIVA ZA HALAL BOJILO U FORMULACIJAMA RUŽEVA ZA USNE I ANTIMIKROBNE KREME

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SAŽETAK

Potražnja za halal certificiranim kozmetikom značajno je porasla usljed sve veće svijesti potrošača o etičkim, sigurnim i šerijatski prihvatljivim sastojcima. Konvencionalna kozmetička bojila često izazivaju zabrinutost zbog svog sintetskog porijekla, potencijalne toksičnosti i nehalal izvora. *Morus nigra* (crna murva) je cvjetajuća biljka porijeklom iz jugozapadne Azije, cijenjena zbog svojih hranjivih plodova koji posjeduju antioksidativna, protuupalna i antibakterijska svojstva. Visok sadržaj antocijanina u *M. nigra* daje intenzivan prirodni pigment pogodan za kozmetičke primjene, dok istovremeno pruža antioksidativna i antimikrobna svojstva. Cilj ove studije je istražiti ekstrakt *M. nigra* kao prirodnu halal alternativu za bojilo u ruževima za usne i formulacijama antimikrobnih krema. Ekstrakcija *M. nigra* izvršena je metodom maceracije. Antimikrobna krema i ruž za usne s ekstraktom *M. nigra* formulirani su korištenjem halal certificiranih sastojaka, uz prateću dokumentaciju kao što su halal certifikat, certifikat o analizi (CoA), međunarodna nomenklatura kozmetičkih sastojaka (INCI) i sigurnosno-tehnički list (MSDS). Formulirani ruž za usne i antimikrobna krema testirani su pomoću metode difuzije na disku. Antioksidativna svojstva kreme i ruža za usne s *M. nigra* (5, 10, 15 % W/W) testirana su DPPH i FRAP metodom, dok su UV zaštitna svojstva ispitana SPF testom. Također su procijenjena i fizikalno-hemijska svojstva ruža i kreme. Formulacija ruža za usne procijenjena je po intenzitetu boje, stabilnosti pH vrijednosti i teksturi, dok je antimikrobna krema testirana na djelovanje protiv *Staphylococcus aureus* i *Pseudomonas aeruginosa*. Rezultati su pokazali da ruževi s *M. nigra* imaju purpurno-crvenu boju i voćni miris. Ruž ima ujednačen izgled, dobro razmazivanje i stabilnost pri pH vrijednostima od 5.72 do 6.02, što ga čini pogodnim za primjenu na usne. Ekstrakt *M. nigra* (100 µg/ml) pokazao je visoku antioksidativnu aktivnost od 85,86% u DPPH testu i 2,409 µmol Fe(II)/g u FRAP testu, te UV zaštitu od 37,23% u SPF testu. Antimikrobna ispitivanja pokazala su da krema s *M. nigra* može inhibirati rast *S. aureus* i *P. aeruginosa*. Ova studija ističe *Morus nigra* kao održivu, halal-prihvatljivu i bioaktivnu alternativu sintetičkim bojama i antimikrobnim agensima u kozmetičkoj industriji. Nalazi doprinose razvoju prirodnih i halal certificiranih kozmetičkih proizvoda, odgovarajući na rastuće zahtjeve tržišta.

Ključne riječi: *halal kozmetika, Morus nigra, prirodno bojilo, antimikrobna krema*

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

HALAL IN THE PHARMACEUTICAL AND COSMETIC INDUSTRY

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ABSTRACT

The global pharmaceutical and cosmetic industries are witnessing a paradigm shift towards ethical and religious compliance, particularly in response to the rising demand for halal-certified products. With Muslim consumer spending on pharmaceuticals reaching \$108 billion in 2022 and projected to grow at 5.7% CAGR to \$142 billion by 2027, the halal pharmaceutical market is expanding rapidly. Key challenges such as inflation, supply chain disruptions, and localization initiatives have prompted governments and private entities to strengthen biopharmaceutical production in OIC countries, with initiatives like Indovax and Saudivax. Similarly, the halal cosmetics industry has experienced significant growth, driven by rising consumer awareness of ethical sourcing, cruelty-free testing, and religious compliance. In 2022, Muslim consumer spending on halal cosmetics reached \$84 billion, with an expected surge to \$129 billion by 2027 at an 8.9% CAGR. Innovations such as AI-driven virtual makeup try-ons and sustainable supply chains are reshaping the market, with Korea, India, and Indonesia emerging as key industry players. Halal compliance in these industries goes beyond avoiding prohibited substances like alcohol and animal-derived ingredients; it ensures rigorous quality control, transparency, and adherence to Islamic ethical principles. As demand for safe, sustainable, and halal-certified products increases, global regulatory frameworks, investment in research and development, and cross-border collaboration are becoming essential for standardizing halal certification and expanding market reach. The future of halal pharmaceuticals and cosmetics lies in technological advancements, sustainability, and enhanced consumer engagement.

Keywords: *Halal pharmaceuticals, halal cosmetics, ethical compliance, Muslim consumer market, halal certification.*

HALAL U FARMACEUTSKOJ I KOZMETIČKOJ INDUSTRIJI

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SAŽETAK

Globalna farmaceutska i kozmetička industrija doživljava promjenu paradigme prema etičkoj i vjerskoj usklađenosti, naročito kao odgovor na rastuću potražnju za halal-certificiranim proizvodima. Potrošnja muslimanskih potrošača na farmaceutske proizvode dostigla je 108 milijardi dolara u 2022. godini i predviđa se da će rasti po godišnjoj stopi rasta od 5,7% (CAGR), dosežući 142 milijarde dolara do 2027. godine, što pokazuje brz rast halal farmaceutskog tržišta. Ključni izazovi poput inflacije, poremećaja u lancima snabdijevanja i inicijativa za lokalizaciju podstakli su vlade i privatne entitete da ojačaju biopharmaceutsku proizvodnju u zemljama OIC-a, kroz inicijative poput Indovaxa i Saudivaxa. Slično tome, halal kozmetička industrija je doživjela značajan rast, podstaknuta povećanom potrošačkom sviješću o etičkom nabavci, testiranju bez okrutnosti i vjerskoj usklađenosti. U 2022. godini, potrošnja muslimanskih potrošača na halal kozmetiku dostigla je 84 milijarde dolara, a očekuje se porast na 129 milijardi dolara do 2027. godine, uz godišnju stopu rasta od 8,9%. Inovacije poput virtuelnog isprobavanja šminke vođenih umjetničkom inteligencijom i održivih lanaca snabdijevanja preoblikuju tržište, pri čemu Koreja, Indija i Indonezija postaju ključni akteri u industriji. Halal usklađenost u ovim industrijama ne znači samo izbjegavanje zabranjenih supstanci poput alkohola i sastojaka životinjskog porijekla; ona osigurava rigoroznu kontrolu kvaliteta, transparentnost i pridržavanje islamskih etičkih principa. Kako potražnja za sigurnim, održivim i halal-certificiranim proizvodima raste, globalni regulatorni okviri, ulaganje u istraživanje i razvoj, te prekogranična saradnja postaju ključni za standardizaciju halal certifikacije i širenje tržišta. Budućnost halal farmaceutskih i kozmetičkih proizvoda leži u tehnološkim naprecima, održivosti i unaprijeđenoj angažovanosti potrošača.

Ključne riječi: *Halal, održivost, okoliš, društvo*

CHAPTER

HALAL TOURISM AND GASTRONOMY

HALAL TURIZAM I GASTRONOMIJA

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

TOURISM VALORIZATION OF SPECIFIC RAMADAN TRADITIONS AND DEVELOPMENT OF HALAL TOURISM THROUGH THE PROJECT "VISIT SARAJEVO: FEEL THE SPIRIT OF RAMADAN"

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ABSTRACT

The project "Visit Sarajevo: Feel the Spirit of Ramadan," born from the cooperation between the Tourism Association of Sarajevo Canton and the Islamic Community Council of Sarajevo, aims to enhance Sarajevo's tourism potential by focusing on specific Ramadan traditions and religious tourism. This initiative highlights the cultural richness and significance of Ramadan in Bosnia and Herzegovina, offering tourists an immersive experience of the city's spiritual atmosphere during this holy month. Through a series of religious and cultural events and programs, the festival promotes the beauty of Ramadan and the tourism offerings of Sarajevo Canton, contributing to the development of specific forms of tourism and the promotion of Sarajevo as a halal-friendly tourist destination. Special emphasis is placed on unique Ramadan traditions in Sarajevo, such as Ramadan evenings, Quran recitations (mukabele), Taraweeh prayers, preparation of traditional dishes, communal iftars and gatherings, discussions, musical programs, and the distinctive atmosphere on city streets after iftar, which attracts both Muslim tourists and visitors of other religious backgrounds to experience the true spirit of Sarajevo. The city's Ottoman heritage and its multiethnic and multireligious history provide a rich environment for the tourism valorisation of Ramadan traditions, making Sarajevo a fascinating destination for those interested in authentic Islamic culture, which for centuries has intertwined with other religions and influences. By promoting halal-friendly tourism, the "Visit Sarajevo: Feel the Spirit of Ramadan" project meets the needs of Muslim travelers seeking destinations that respect Islamic principles. Halal-friendly tourism includes the availability of halal food, prayer spaces, and various services aligned with the values and principles of Muslim visitors. Sarajevo's rich Islamic heritage, with its mosques, cultural centers, and halal-certified establishments and businesses, creates an ideal setting for the development of this type of tourism. However, it is important to emphasize that this project aims not only to promote religious tourism but also to preserve and present intangible cultural heritage, positioning Sarajevo as a key destination for Muslim travelers and all other tourists who wish to gain a true understanding of Ramadan and its significance in the heart of the Balkans.

Keywords: *halal-friendly tourism, valorisation, Ramadan, tradition, Muslim travellers*

TURISTIČKA VALORIZACIJA SPECIFIČNIH RAMAZANSKIH TRADICIJA I RAZVOJ HALAL TURIZMA KROZ PROJEKAT „VISIT SARAJEVO: FEEL THE SPIRIT OF RAMADAN“

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SAŽETAK

Projekat „Visit Sarajevo: Feel the Spirit of Ramadan“, koji je nastao kao produkt saradnje između Turističke zajednice Kantona Sarajevo i Medžlisa Islamske zajednice Sarajevo, ima za cilj unapređenje turističkog potencijala Sarajeva kroz fokusiranje na specifične ramazanske tradicije i vjerski turizam. Ova inicijativa ističe kulturno bogatstvo i značaj ramazana u Bosni i Hercegovini, nudeći turistima umerzivo iskustvo duhovne atmosfere grada tokom ovog svetog mjeseca. Kroz niz vjersko-kulturnih sadržaja i programa, festival promoviše ramazanske ljepote i turističku ponudu Kantona Sarajevo, te doprinosi razvoju specifičnih oblika turizma i promociji Sarajeva kao halal-friendly turističke destinacije. Poseban akcenat stavljen je na specifične ramazanske tradicije u Sarajevu, ramazanske večeri, mukabele, teravih-namaze, pripremu tradicionalnih jela, zajedničke iftare i druženja, diskusije, muzičke programe, ali i na jedinstvenu atmosferu na ulicama grada, koja vlada nakon iftara i koja privlači podjednako turiste muslimane i turiste drugih religijskih opredjeljenja da osjete istinski duh Sarajeva. Otomanska baština grada i njegova multietnička i multireligijska historija pružaju bogat ambijent za turističku valorizaciju ramazanskih tradicija, čineći Sarajevo fascinantnom destinacijom za sve one koji su zainteresovani za autentičnu islamsku kulturu, koja se ovdje stoljećima spaja i isprepliće s drugim religijama i uticajima. Promovišući halal-friendly turizam, manifestacija „Visit Sarajevo: Feel the Spirit of Ramadan“ zadovoljava potrebe putnika muslimana koji tragaju za destinacijama koje poštuju islamske principe. Halal-friendly turizam uključuje dostupnost halal hrane, prostora za molitvu i različitih usluga koje su u skladu s vrijednostima i principima posjetilaca muslimana. Bogato islamsko naslijeđe Sarajeva, s njegovim džamijama, kulturnim centrima i halal-certifikovanim ustanovama i privrednim subjektima, stvara idealnu sredinu za razvoj ovog oblika turizma. Međutim, važno je naglasiti da ovaj projekat ima za cilj ne samo promociju vjerskog turizma, već i očuvanje i predstavljanje nematerijalne kulturne baštine i pozicioniranje Sarajeva kao ključne destinacije za putnike muslimane, ali i sve ostale turiste koji žele istinski razumjeti ramazana i njegovog značaj u srcu Balkana.

Ključne riječi: *halal-friendly turizam, valorizacija, Ramazan, tradicija, muslimani putnici*

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

HALAL TOURISM SERVICES FROM THE STANDARDIZATION POINT OF VIEW

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ABSTRACT

The Organization of Islamic Cooperation (OIC) is the second largest inter-governmental organization after the United Nations which has membership of 57 countries spread over four continents. The Organization is the collective voice of the Muslim world ensuring to safeguard and protect the interests of the Muslim world in the spirit of promoting international peace and harmony among various people of the world. The SMIIC also seeks for achieving uniformity in metrology, laboratory testing and standardization activities among Member States and ensuring education and training and providing technical assistance to the OIC Members in the domain of standardization and metrology. OIC/SMIIC Standards are prepared by SMIIC Technical Committees (TCs) that composed of the Member States. The experts assigned by the Member States participate in the standardization technical work and establish the common OIC/SMIIC Standards aimed to be used by OIC Member States and the relevant stakeholders in the world. SMIIC Technical Committee 5 (TC 5) is entitled as “Tourism and Related Issues”. The technical work of this committee is also followed by OIC. At first the committee prepared the draft standard. Following submission of the document for the review and approval of the Member States, the draft has been approved and published as the standard with reference no “OIC/SMIIC 9: 2019” by 22 December 2019.

Keywords: *OIC, SMIIC, standardizaciju i halal turističke usluge*

USLUGE HALAL TURIZMA IZ PERSPEKTIVE STANDARDIZACIJE

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SAŽETAK

Organizacija islamske saradnje (OIC) je druga po veličini međuvladina organizacija nakon Ujedinjenih nacija, s članstvom od 57 zemalja raspoređenih na četiri kontinenta. Organizacija predstavlja kolektivni glas muslimanskog svijeta, s ciljem zaštite i očuvanja interesa muslimanskog svijeta u duhu promovisanja međunarodnog mira i harmonije među različitim narodima svijeta. SMIIC takođe teži postizanju usklađenosti u oblasti metrologije, laboratorijskog testiranja i standardizacije među državama članicama, te osiguravanju obrazovanja, obuke i pružanja tehničke pomoći članicama OIC-a u domenu standardizacije i metrologije. OIC/SMIIC standarde pripremaju Tehnički komiteti (TC) SMIIC-a, koje čine države članice. Stručnjaci koje imenuju države članice učestvuju u tehničkom radu na standardizaciji i uspostavljaju zajedničke OIC/SMIIC standarde koji su namijenjeni za upotrebu od strane članica OIC-a i relevantnih aktera širom svijeta. Tehnički komitet 5 (TC 5) SMIIC-a nosi naziv „Turizam i srodna pitanja“. Tehnički rad ovog komiteta prati i OIC. U početku je komitet pripremio nacrt standarda. Nakon što je dokument podnesen na razmatranje i odobrenje državama članicama, nacrt je usvojen i objavljen kao standard pod referentnim brojem “OIC/SMIIC 9:2019” dana 22. decembra 2019. godine.

Ključne riječi: OIC, SMIIC, standardizacija, halal turističke usluge

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

FLAVOURS OF FAITH: HALAL GASTRONOMY AS A GETAWAY TO MUSLIM-FRIENDLY TOURISM IN SARAJEVO

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ABSTRACT

Sarajevo stands at a unique crossroads of history, culture, and cuisine—making it a natural magnet for the global Muslim traveller. As the Event Director of the Muslim Travel Show and World Halal Food Festival, I have witnessed first-hand the rising demand for immersive travel experiences that combine halal-friendly hospitality with authentic culinary exploration. Bosnia, and Sarajevo in particular, offers a compelling opportunity to position itself as a leading Halal tourism destination in Europe. With a rich Ottoman culinary heritage, an existing Muslim-majority population, and a rapidly developing hospitality sector, Sarajevo has all the ingredients needed to lead this emerging segment. This paper explores how halal gastronomy can be strategically positioned as a central pillar of Bosnia's tourism narrative. It evaluates the potential of Sarajevo's food culture to attract high-spending, experience-seeking Muslim travellers, and proposes a practical framework for leveraging culinary storytelling, food festivals, halal certification, and digital influencer marketing to boost Muslim visitor numbers. The paper concludes with insights from UK based Muslim consumer behaviour and offers recommendations for stakeholders in the Bosnian tourism ecosystem to better align with global halal travel trends.

Keywords: *Sarajevo, halal tourism, Muslim travellers, halal gastronomy, cultural heritage*

OKUSI VJERE: HALAL GASTRONOMIJA KAO PUT DO MUSLIMANSKOG TURIZMA PRIJATELJSKOG PREMA SARAJEVU

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SAŽETAK

Sarajevo se nalazi na jedinstvenoj raskrsnici historije, kulture i kulinarstva, što ga čini prirodnim magnetom za globalne muslimanske putnike. Kao direktor događanja Muslim Travel Show i World Halal Food Festival, svjedočio sam rastućoj potražnji za iskustvenim putovanjima koja spajaju halal-prijateljsku uslugu s autentičnom kulinarskom istraživačkom avanturom. Bosna, a posebno Sarajevo, nudi uvjerljivu priliku da se pozicionira kao vodeća destinacija halal turizma u Europi. Sa bogatom osmanskom kulinarskom baštinom, postojećom muslimanskom većinom i brzo razvijajućim sektorom ugostiteljstva, Sarajevo posjeduje sve potrebne sastojke da predvodi ovaj rastući segment. Ovaj rad istražuje kako halal gastronomija može biti strateški pozicionirana kao centralna osovina turističke naracije Bosne i Hercegovine. Evaluira potencijal sarajevske hrane za privlačenje muslimanskih putnika koji traže iskustva i koji imaju visoka potrošačka očekivanja, te predlaže praktičan okvir za korištenje kulinarskog pričanja priča, festivala hrane, halal certifikacije i digitalnog marketinga influensera kako bi se povećao broj muslimanskih posjetitelja. Rad završava uvidima u ponašanje muslimanskih potrošača u Ujedinjenom Kraljevstvu i nudi preporuke za dionike u bosanskom turističkom ekosistemu kako bi se bolje uskladili sa globalnim trendovima halal putovanja.

Ključne riječi: Sarajevo, halal turizam, muslimanski putnici, halal gastronomija, kulturna baština

CHAPTER

HALAL IN THE CONTEXT OF SUSTAINABLE
TECHNOLOGIES AND LIFESTYLE

HALAL U KONTEKSTU ODRŽIVIH
TEHNOLOGIJA I ŽIVOTNOG STILA

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

HALAL IN THE CONTEXT OF SUSTAINABILITY

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ABSTRACT

In the context of sustainable technologies and lifestyle, “halal” refers to practices, products and technologies that are consistent with Islamic principles and ensure that they are not only ethical but also environmentally and socially responsible. Given that the concept of halal encompasses more than food and drink, it expands to several aspects of life, including finance, clothing and indeed technologies. However the traditional halal practices do not directly address the environmental issues such as, greenhouse gas emmisions, water adequate risks and natural impacts there is a growing movement to incorporate sustainable practices into halal food production. The halal approach which contains sustainable technologies that prioritize reducing environmental damage, with renewable energy and environmentally-friendly materials, sustainable farming conserving water and organic farming, protecting cultural heritage, animal welfare and social justice covering fair labor practices well being workers, equal opportunity, fair wages, health and safety of the employees, ethical communication, are highly compatible with Islamic values. Considering the significant growth of the halal industry, this review aims to provide an overview the long-term impacts of sustainability on society, ecosystem, cultural heritage and the sustainable halal food industry.

Keywords: *halal, sustainability, environment, social*

HALAL U KONTEKSTU ODRŽIVOSTI

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SAŽETAK

U kontekstu održivih tehnologija i životnog stila, “halal” se odnosi na prakse, proizvode i tehnologije koje su u skladu s islamskim principima i osiguravaju da nisu samo etički prihvatljive, već i ekološki i društveno odgovorne. S obzirom na to da koncept halal obuhvata više od hrane i pića, širi se na nekoliko aspekata života, uključujući finansije, odjeću i, naravno, tehnologije. Međutim, tradicionalne halal prakse ne bave se direktno ekološkim pitanjima poput emisije stakleničkih gasova, rizika od nedostatka vode i uticaja na prirodu. Ipak, postoji rastući pokret koji se zalaže za uključivanje održivih praksi u proizvodnju halal hrane. Halal pristup koji sadrži održive tehnologije, koje prioritetno smanjuju ekološke štete, koriste obnovljive izvore energije i ekološki prihvatljive materijale, održivu poljoprivredu koja štedi vodu i organsku poljoprivredu, te štite kulturnu baštinu, dobrobit životinja i socijalnu pravdu, uključujući pravedne radne prakse, dobrobit radnika, jednake mogućnosti, pravedne plate, zdravlje i sigurnost zaposlenih, etičku komunikaciju, u velikoj mjeri su kompatibilni s islamskim vrijednostima. Uzimajući u obzir značajan rast halal industrije, ovaj pregled ima za cilj pružiti uvid u dugoročne uticaje održivosti na društvo, ekosistem, kulturnu baštinu i održivu halal industriju hrane.

Ključne riječi: *Halal, održivost, okoliš, društvo*

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

FUTURE FORESIGHT OF HALAL IN THE CONTEXT OF SUSTAINABLE TECHNOLOGIES WITH FOCUS TO ANIMAL WASTE INDEX

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ABSTRACT

The future of Halal sustainable technologies presents significant potential in addressing the growing demand for ethical, environmentally friendly solutions, particularly within Muslim communities and the global market. As the world becomes more aware of sustainability challenges, there is an opportunity to integrate Islamic principles of halal (permissible) and tayyib (pure, wholesome) into emerging technologies, especially in sectors like agriculture, pharmaceuticals, cosmetics, and finance. These sectors can benefit from innovations that adhere to sustainability standards while aligning with Halal practices. This paper focuses on evaluating the Animal Waste Index (AWI) as a tool to measure the management and impact of animal waste in agricultural settings. AWI aims to improve sustainability and waste management by tracking how animal waste is converted into compost, using efficient methods that align with Halal principles. The potential for real-time data collection and monitoring technologies would further enhance this process, leading to more sustainable and Halal-compliant agricultural practices. One solution in food waste management involves using bioreactors, which break down organic waste through controlled biological processes. These devices, which function both aerobically (with oxygen) and anaerobically (without oxygen), can convert food waste into compost, enriching soil and supporting agricultural production. The integration of bioreactors offers an efficient, scalable solution to waste management, reducing environmental impact and enhancing sustainability while meeting Halal standards. As Halal-certified products are increasingly in demand across various industries, the alignment of Halal practices with environmentally responsible solutions creates an opportunity to expand Halal standards into sustainable technologies. The growing application of Halal principles in new sectors such as animal welfare, cosmetics, and bio-based products suggests a broader potential for Halal sustainability efforts. The development of AWI as a tool for tracking animal waste conversion is vital in guiding agricultural practices toward more sustainable, ethical, and Halal-compliant methods. Composting food waste not only reduces environmental footprints but also turns waste into valuable resources, enriching soil and supporting food security. Looking ahead, technologies like bioreactors will play a crucial role in addressing global waste management challenges, sustainability goals, and the increasing demand for

bio-based products. By fostering innovations that meet both ethical and environmental standards, the future of Halal sustainable technologies promises a more responsible and sustainable global market.

Keywords: *Animal Waste Index, sustainability, Halal, bioreactors, waste management*

PREDVIĐANJE BUDUĆNOSTI HALALA U KONTEKSTU ODRŽIVIH TEHNOLOGIJA S FOKUSOM NA INDEKS ŽIVOTINJSKOG OTPADA

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SAŽETAK

Budućnost halal održivih tehnologija pokazuje značajan potencijal u odgovaranju na rastuću potražnju za etičkim i ekološki prihvatljivim rješenjima, posebno unutar muslimanskih zajednica, ali i na globalnom tržištu. Kako svijet postaje sve svjesniji izazova vezanih za održivost, otvara se prilika za integraciju islamskih principa halala (dozvoljeno) i tayyiba (čisto, zdravo, korisno) u nove tehnologije – naročito u sektorima poput poljoprivrede, farmacije, kozmetike i finansija. Ove industrije mogu imati koristi od inovacija koje poštuju standarde održivosti, a istovremeno su usklađene s halal praksama. Ovaj rad fokusira se na procjenu Indeksa životinjskog otpada (AWI – Animal Waste Index) kao alata za mjerenje upravljanja životinjskim otpadom i njegovog uticaja u poljoprivrednom okruženju. AWI ima za cilj unaprijediti održivost i upravljanje otpadom prateći kako se životinjski otpad pretvara u kompost, korištenjem efikasnih metoda koje su u skladu s halal principima. Potencijal primjene tehnologija za prikupljanje i praćenje podataka u stvarnom vremenu dodatno bi unaprijedio ovaj proces, vodeći ka održivijim i halal-usaglašenim poljoprivrednim praksama. Jedno od rješenja u upravljanju prehrambenim otpadom je upotreba bioraktora, koji razgrađuju organski otpad putem kontroliranih bioloških procesa. Ovi uređaji, koji funkcionišu aerobno (s kisikom) i anaerobno (bez kisika), mogu pretvarati prehrambeni otpad u kompost, obogaćujući tlo i podržavajući poljoprivrednu proizvodnju. Integracija bioraktora nudi efikasno, skalabilno rješenje za upravljanje otpadom, smanjujući negativan uticaj na okoliš i povećavajući održivost, dok istovremeno zadovoljava halal standarde. Kako potražnja za halal-certificiranim proizvodima raste u raznim industrijama, usklađivanje halal praksi s ekološki odgovornim rješenjima otvara mogućnost proširenja halal standarda na održive tehnologije. Rastuća primjena halal principa u novim sektorima kao što su dobrobit životinja, kozmetika i bio-proizvodi, ukazuje na širi potencijal halal održivosti. Razvoj AWI-a kao alata za praćenje pretvaranja životinjskog otpada je ključan za usmjeravanje poljoprivredne prakse ka održivijim, etičkim i halal-usaglašenim metodama. Kompostiranje prehrambenog otpada ne samo da smanjuje negativan uticaj na okoliš, već otpad pretvara u vrijedan resurs koji obogaćuje tlo i doprinosi prehrambenoj sigurnosti. Gledajući u budućnost, tehnologije poput bioraktora igraće ključnu ulogu u rješavanju globalnih izazova upravljanja otpadom, ispunjavanju ciljeva održivosti i odgovaranju

na rastuću potražnju za bio-proizvodima. Podsticanjem inovacija koje zadovoljavaju i etičke i ekološke standarde, budućnost halal održivih tehnologija obećava odgovornije i održivije globalno tržište.

Ključne riječi: Indeks životinjskog otpada, održivost, halal, bioraktori, upravljanje otpadom

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

CIRCULAR ECONOMY, A SUSTAINABLE APPROACH FOR HALAL COSMETICS PRODUCTION

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ABSTRACT

The implementation of sustainable approaches in cosmetics production became crucial; due to its role in reducing the negative environmental impacts in all phases of the cosmetic product life cycle. In addition to its evident positive impact both at economic and social levels. Recently, Circular Economy is considered an important tool to achieving sustainability within many sectors including cosmetics industry. This study will cover the current sustainable trends in cosmetics production with focus on the implementation of Circular Economy principles. Analysis of the principles of this business model and how it could impact the Halal perspectives will be conducted from the point of view of its compliance with the Halal requirements, and the expected positive impacts on promoting and marketing of Halal cosmetics. The possibility of coupling halal food production with halal cosmetics will also be studied in the context of Circular Economy principles, highlighting challenges and proposing solutions. The role of International Standards in promoting Circular Economy and how standardization bodies including SMIIC could be engaged and contribute will also be underlined in this study.

Keywords: *Halal cosmetics, Circular Economy, Sustainability*

KRUŽNA EKONOMIJA – ODRŽIVI PRISTUP U PROIZVODNJI HALAL KOZMETIKE

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SAŽETAK

Primjena održivih pristupa u proizvodnji kozmetike postala je ključna zbog svoje uloge u smanjenju negativnih uticaja na okoliš u svim fazama životnog ciklusa kozmetičkog proizvoda. Osim toga, ima i očigledan pozitivan uticaj na ekonomskoj i društvenoj razini. U posljednje vrijeme, kružna ekonomija se smatra važnim alatom za postizanje održivosti u mnogim sektorima, uključujući i kozmetičku industriju. Ova studija će obuhvatiti trenutne održive trendove u proizvodnji kozmetike s fokusom na primjenu principa kružne ekonomije. Analizirat će se principi ovog poslovnog modela i kako bi on mogao uticati na halal perspektive, s aspekta usklađenosti s halal zahtjevima i očekivanih pozitivnih efekata na promociju i plasman halal kozmetike. Također će se razmatrati mogućnost povezivanja proizvodnje halal hrane s halal kozmetikom u kontekstu principa kružne ekonomije, uz naglašavanje izazova i predlaganje rješenja. Uloga međunarodnih standarda u promovisanju kružne ekonomije i način na koji bi tijela za standardizaciju, uključujući SMIIC, mogla biti uključena i doprinijeti, također će biti naglašeni u ovoj studiji.

Ključne riječi: Halal kozmetika, kružna ekonomija, održivost

CHAPTER

ANALYTICAL METHODS AND
IDENTIFICATION OF HARAM

ANALITIČKE METODE I
IDENTIFIKACIJA HARAMA

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

THE INFLUENCE OF LACTOBACILLUS SPP. ON THE HYGIENIC SAFETY OF DRY CHEESE - A TRADITIONAL HALAL PRODUCT OF BOSNIA AND HERZEGOVINA

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ABSTRACT

This study examines the influence of *Lactobacillus* spp. on the hygienic safety of dry cheese, a traditional halal product of Bosnia and Herzegovina. Dry cheese is an important part of cultural and gastronomic heritage, especially in northeastern Bosnia, where it is produced according to traditional methods and passed down from generation to generation. This cheese has probiotic properties thanks to its natural microflora, including *Lactobacillus* spp. which positively affects on digestive health. The aim of the study is to examine the antimicrobial activity of *Lactobacillus* spp. against pathogenic bacteria *Listeria monocytogenes*, *Escherichia coli*, *Staphylococcus aureus* and *Aerobic mesophilic bacteria*. A total of 33 samples of dry cheese from BiH producers were analyzed for the purposes of the study, according to BAS EN ISO standard. Dry cheese samples were analyzed after smoking, after 7 days of ripening at a temperature of 15 °C +/- 1° C and after 7 days of storage at a temperature of +4 to 8°C. The results showed that the product remains microbiologically safe for consumption after ripening and storage, and the presence of *Lactobacillus* spp. confirms the probiotic properties of the cheese. This cheese is produced in accordance with the requirements of the Halal standard and guarantees the safety and quality of the product, and has additional value for Muslim consumers. Dry cheese produced in Bosnia and Herzegovina has high microbiological correctness and health benefits associated with probiotic properties. Production according to halal requirements provides additional security to consumers looking for products in accordance with religious norms.

Keywords: *Lactobacillus* spp., dry cheese, hygiene, halal product.

UTICAJ *LACTOBACILLUS* SPP. NA HIGIJENSKU ISPRAVNOST SUHOG SIRA - TRADICIONALNOG HALAL PROIZVODA BOSNE I HERCEGOVINE

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SAŽETAK

Ovo istraživanje proučava uticaj *Lactobacillus* spp. na higijensku ispravnost suhog sira, tradicionalnog halal proizvoda Bosne i Hercegovine. Suhi sir je važan dio kulturnog i gastronomskog naslijeđa, posebno u sjeveroistočnoj Bosni, gdje se proizvodi prema tradicionalnim metodama i prenosi s generacije na generaciju. Ovaj sir ima probiotske osobine zahvaljujući prirodnoj mikroflori, uključujući *Lactobacillus* spp. koji pozitivno utiče na zdravlje probave. Cilj istraživanja je ispitati antimikrobnu aktivnost *Lactobacillus* spp. protiv patogenih bakterija *Listeria monocytogenes*, *Escherichia coli*, *Staphylococcus aureus* i *Aerobne mezofilne bakterije*. Za potrebe istraživanja analizirano je ukupno 33 uzorka suhog sira BiH proizvođača, prema BAS EN ISO standardu. Analizirani su uzorci suhog sira nakon dimljenja, nakon 7 dana zrenja na temperaturi 15 °C +/- 1 °C i nakon 7 dana skladištenja na temperaturi +4 do 8°C. Rezultati su pokazali da proizvod nakon zrenja i skladištenja ostaje mikrobiološki ispravan i siguran za konzumaciju, a prisutnost *Lactobacillus* spp. potvrđuje probiotska svojstva sira. Ovaj sir je proizveden u skladu sa zahtjevima Halal standarda i garantuje sigurnost i kvalitet proizvoda, te ima dodatnu vrijednost za muslimanske potrošače. Suhi sir proizveden u Bosni i Hercegovini ima visoku mikrobiološku ispravnost i zdravstvene benefite povezane s probiotskim svojstvima. Proizvodnja prema halal zahtjevima pruža dodatnu sigurnost potrošačima koji traže proizvode u skladu sa vjerskim normama.

Ključne riječi: *Lactobacillus* spp., dimljeni suhi sir, higijenska ispravnost, halal proizvod

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

IMPLEMENTING HALAL FORENSIC SCIENCE THROUGH ADVANCED DNA-BASED ASSURANCE FOR HALAL FOOD SAFETY IN THAILAND

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ABSTRACT

The world today is undergoing rapid and complex changes, including climate challenges, economic uncertainty, and shifts in consumer behavior. These dynamics have heightened the importance of ensuring the safety and integrity of halal food, especially in countries like Thailand, where Muslims are a minority and yet the nation is a major global food producer and exporter. The potential for contamination from non-halal sources, particularly pork-derived ingredients, presents significant concerns for Muslim consumers. Therefore, accurate and reliable laboratory analysis has become essential to protect consumer rights and strengthen confidence in halal standards. Among various analytical methods, DNA-based testing, particularly Real-Time PCR, stands out as the most precise and conclusive technique for detecting non-halal animal species in food products. This method allows for the identification of even trace amounts of prohibited substances, ensuring a high level of certainty in halal verification. For example, DNA-based techniques are used to differentiate between bovine and porcine DNA in complex food matrices, including processed meat products. Moreover, DNA analysis is applied to detect animal-derived components in plant-based meat alternatives, which are increasingly popular in the market but may pose risks of cross-contamination. Advanced techniques such as multiplex High Resolution Melting Analysis (HRMA) and the development of strip tests based on DNA markers have further enhanced the speed and accessibility of halal verification processes. The Halal Science Center, Chulalongkorn University, through its HAFOLAB laboratory, focuses on advancing DNA analysis as a primary tool for halal food assurance. Additionally, the laboratory applies complementary techniques, such as GC-FID for ethanol detection, LC-MS/MS for gelatin identification, and GC-FID for fatty acid profiling, to provide comprehensive analytical services. The ongoing development of DNA-based methods and other scientific innovations at the Halal Science Center not only reinforces consumer protection but also supports Thailand's role as a leading producer and exporter of halal food. These efforts contribute to positioning the country as a trusted center for halal science and technology at both regional and global levels.

Keywords: *Halal Forensic Science, DNA-Based Testing, Real-Time PCR, Halal Food Verification, Consumer Protection*

PRIMJENA HALAL FORENZIČKE NAUKE PUTEM NAPREDNE DNK- VERIFIKACIJE ZA SIGURNOST HALAL HRANE U TAJLANDU

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SAŽETAK

Svijet danas prolazi kroz brze i složene promjene, uključujući klimatske izazove, ekonomsku nesigurnost i promjene u ponašanju potrošača. Ove dinamike povećavaju važnost osiguravanja sigurnosti i integriteta halal hrane, posebno u zemljama poput Tajlanda, gdje su muslimani manjina, a država je jedan od glavnih globalnih proizvođača i izvoznika hrane. Potencijal za kontaminaciju iz nehalal izvora, posebno sastojaka od svinjetine, predstavlja značajne zabrinutosti za muslimanske potrošače. Stoga je tačna i pouzdana laboratorijska analiza postala ključna za zaštitu prava potrošača i jačanje povjerenja u halal standarde. Među različitim analitičkim metodama, testiranje zasnovano na DNK, posebno Real-Time PCR, izdvaja se kao najpreciznija i najpouzdanija tehnika za otkrivanje nehalal životinjskih vrsta u prehrambenim proizvodima. Ova metoda omogućava identifikaciju čak i tragova zabranjenih supstanci, osiguravajući visok nivo sigurnosti u halal verifikaciji. Na primjer, DNK tehnike se koriste za razlikovanje između DNK goveda i svinja u složenim prehrambenim matricama, uključujući prerađene mesne proizvode. Štaviše, DNK analiza se primjenjuje za detekciju životinjskih sastojaka u biljnim alternativama mesu, koje postaju sve popularnije na tržištu, ali mogu predstavljati rizik od unakrsne kontaminacije. Napredne tehnike poput multiplex High Resolution Melting Analysis (HRMA) i razvoj traka za testiranje zasnovanih na DNK markerima dodatno su unaprijedile brzinu i pristupačnost procesa halal verifikacije. Halal Science Center, Chulalongkorn University, kroz svoj HAFOLAB laboratorij, fokusira se na unapređenje DNK analize kao glavnog alata za osiguranje halal hrane. Pored toga, laboratorij primjenjuje komplementarne tehnike, poput GC-FID za detekciju etanola, LC-MS/MS za identifikaciju želatina i GC-FID za profiliranje masnih kiselina, kako bi pružio sveobuhvatne analitičke usluge. Kontinuirani razvoj DNK metoda i drugih naučnih inovacija u Halal Science Center-u ne samo da pojačava zaštitu potrošača, već i podržava ulogu Tajlanda kao vodećeg proizvođača i izvoznika halal hrane. Ovi napori doprinose pozicioniranju zemlje kao pouzdano središte za halal nauku i tehnologiju na regionalnom i globalnom nivou.

Ključne riječi: Halal forenzička nauka, testiranje na bazi DNK, real-time PCR (polimerazna lančana reakcija u stvarnom vremenu), verifikacija halal hrane, zaštita potrošača.

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

PRESENCE OF ANTIBIOTIC-RESISTANT *CAMPYLOBACTER* SPECIES ISOLATES IN CHICKEN MEAT PRODUCTION IN BOSNIA AND HERZEGOVINA

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ABSTRACT

For many years, broiler producers have used antibiotics in chickens as growth promoters. Such practices have contributed to the spread of antibiotic resistance, which poses a serious threat to public health. Antibiotic resistance in *Campylobacter* species is a worrying crisis in the field of food safety, and monitoring of resistant isolates is essential for risk assessment. Therefore, the aim of this study was to examine the antibiotic resistance of *Campylobacter* species isolates obtained from samples of raw chicken meat, meat products and production work surfaces in slaughterhouses and production plants in Bosnia and Herzegovina (facility A with HACCP/Halal and facility B without HACCP/Halal). The study included a total of 225 samples, 50 chicken meat samples, 50 product samples, 75 work surface swabs and 50 worker hand swabs collected from 2 slaughterhouses. After isolation (ISO 10272-2:2017) and identification (biochemical tests, Vitek 2), antibiotic resistance to three types of antibiotics was tested using the disk diffusion method (EUCAST, 2021a; EUCAST, 2021b). All isolates were susceptible to erythromycin, most to tetracycline, and all were resistant to ciprofloxacin. No multiresistant strains were observed. In conclusion, the study showed the presence of *Campylobacter jejuni*, *Campylobacter coli* isolates resistant to the critically important antibiotic ciprofloxacin. The findings emphasize the need for biosecurity and hygiene measures in broiler chicken production, as well as the cessation of the use of fluoroquinolones in broiler therapy.

Keywords: Antibiotic resistance, *Campylobacter jejuni*, *Campylobacter coli*, chicken meat production

ZASTUPLJENOST IZOLATA *CAMPYLOBACTER* SPECIES OTPORNIH NA ANTIBIOTIKE U PROIZVODNJI PILEĆEG MESA U BOSNI I HERCEGOVINI

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SAŽETAK

Dugi niz godina proizvođači brojlera su koristili antibiotike kod pilića kao promotore rasta. Takve prakse doprinijele su širenju antibiotske rezistencije, koja predstavlja ozbiljnu prijetnju javnom zdravlju. Antibiotska rezistencija kod vrsta *Campylobacter* zabrinjavajuća je kriza u području sigurnosti hrane, a praćenje rezistentnih izolata je od suštinskog značaja za procjenu rizika. Stoga je cilj ovog istraživanja bio ispitati antibiotsku rezistenciju izolata *Campylobacter* species dobijenih iz uzoraka sirovog pilećeg mesa, mesnih prerađevina i proizvodnih radnih površina u klaonicama i proizvodnim pogonima u Bosni i Hercegovini (objekat A sa HACCP/Halal i objekat B bez HACCP/Halal). Istraživanjem je obuhvaćeno ukupno 225 uzoraka, 50 uzoraka pilećeg mesa, 50 uzoraka prerađevina, 75 briseva radnih površina i 50 briseva ruku radnika prikupljenih iz 2 klaonice. Nakon izolacije (ISO 10272-2:2017) i identifikacije (biohemijski testovi, Vitek 2), ispitana je antibiotska rezistencija na tri vrste antibiotika metodom disk difuzije (EUCAST, 2021a; EUCAST, 2021b). Svi izolati su bili osjetljivi na eritromicin, većina na tetraciklin, a svi su bili rezistentni na ciprofloksacin. Nisu uočeni multirezistentni sojevi. Zaključno, istraživanje je pokazalo zastupljenost izolata *Campylobacter jejuni*, *Campylobacter coli* rezistentnih na kritično važan antibiotik ciprofloksacin. Nalazi naglašavaju potrebu primjene mjera biosigurnosti i higijene u proizvodnji brojlerskog pilećeg mesa, kao i prestanak primjene fluorokinolona u terapiji brojlera.

Ključne riječi: Antibiotic resistance, *Campylobacter jejuni*, *Campylobacter coli*, chicken meat production

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

TESTING THE EFFECTIVENESS OF 6% DOMESTIC VINEGAR ON THE REDUCTION OF CAMPYLOBACTER SPECIES FROM SURFACES IN CHICKEN MEAT PRODUCTION

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ABSTRACT

The campylobacteriosis control strategy includes the implementation of ISO, HACCP, Halal systems and prevention of cross-contamination of chicken meat in slaughterhouses and production facilities. For this reason, this research began with the assumption that mechanical cleaning of work surfaces in slaughterhouses can improve the effectiveness of even less effective disinfectants. Therefore, the aim of this research was to examine the effectiveness of the application of the same sanitation procedure and measures to reduce *Campylobacter* spp., in facilities with and without HACCP and Halal certificates for the purpose of testing the potential of domestic vinegar 6%, which is known to have mild antiseptic properties, is used in the household and is not harmful to the environment. The research includes a total of 200 samples, 100 surface swabs and 100 hand swabs of workers from 2 slaughterhouses. Isolation of *Campylobacter* species was performed according to (ISO 10272-2:2017), and identification (RealTime-PCR). The impact of sanitation on the reduction of *Campylobacter jejuni* and *Campylobacter coli* was analyzed (ISO 6887-2:2018). *Campylobacter jejuni* and *Campylobacter coli* were isolated from work surfaces. Sanitation measures reduced the number of *Campylobacter* species colonies on surfaces (facility B), before sanitation (average ~ 1741 CFU/cm² \pm 902 CFU/cm²), and after sanitation (average ~ 994 CFU/cm² \pm 535 CFU/cm²). After sanitation, the number of positive swabs did not decrease, but a decrease in the number of *Campylobacter* spp. colonies was determined (average ~ 747 CFU/cm² \pm 965 CFU/cm², or 42.9%). In conclusion, after sanitizing all work surfaces using the same sanitizing procedure that used acetic acid, there was a reduction in the number of *Campylobacter* spp., indicating the effectiveness of the sanitizing procedure, but that sanitizing must be done more frequently.

Keywords: *Campylobacter* species, work surfaces in chicken production, mechanical cleaning, acetic acid

ISPITIVANJE EFIKASNOSTI 6% DOMAĆEG SIRĆETA NA REDUKCIJU CAMPYLOBACTER SPECIES SA POVRŠINA U PROIZVODNJI PILEĆEG MESA

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SAŽETAK

Strategija kontrole kampilobakterioze uključuje implementaciju ISO, HACCP, Halal sistema i prevenciju unakrsne kontaminacije pilećeg mesa u klaonicama i proizvodnim pogonima. Iz tog razloga ovo istraživanje je započelo s pretpostavkom da se mehaničkim čišćenjem radnih površina u klaonicama može poboljšati djelovanje i manje djelotvornog dezinficijensa. Stoga je cilj ovog istraživanja bio ispitati efikasnost primjene istog sanitacijskog postupka i mjere na redukciju *Campylobacter* spp., u objektima sa i bez HACCP i Halal certifikata u svrhu ispitivanja potencijala domaćeg sirćeta 6% za koje se zna da ima blaga antiseptička svojstva, a koristi se u domaćinstvu i nije štetno za okolinu. Istraživanje uključuje ukupno 200 uzoraka, 100 briseva površina i 100 briseva ruku radnika iz 2 klaonice. Izolacija *Campylobacter species* je rađena prema (ISO 10272-2:2017), a identifikacija (RealTime-PCR). Analiziran je uticaj sanitacije na smanjenje broja *Campylobacter jejuni* i *Campylobacter coli* (ISO 6887-2:2018). Sa radnih površina izolovane su *Campylobacter jejuni* i *Campylobacter coli*. Sanitacionim mjerama smanjen je broj kolonija *Campylobacter species* na površinama (objekat B), prije sanitacije (prosječno ~1741 CFU/cm² ± 902 CFU/cm²), a nakon sanitacije (prosječno ~994 CFU/cm² ± 535 CFU/cm²). Nakon sanitacije, broj pozitivnih briseva se nije smanjio, ali je utvrđeno smanjenje broja kolonija *Campylobacter* spp. (prosječno ~747 CFU/cm² ± 965 CFU/cm², ili 42.9%). Zaključno, nakon sanitacije svih radnih površina primjenom istog sanitacijskog postupka u kojem je korištena sirćetna kiselina, došlo je do redukcije broja *Campylobacter* spp., što ukazuje na efikasnost sanitacijskog postupka, ali da se sanitacija mora raditi češće.

Ključne riječi: *Campylobacter species*, radne površine u proizvodnji pilećeg mesa, mehaničko čišćenje, sirćetna kiselina

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

TESTING THE SEASONALITY OF CAMPYLOBACTER SPECIES ISOLATES FROM SAMPLES IN CHICKEN MEAT PRODUCTION

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ABSTRACT

Campylobacteriosis is a seasonal zoonosis most commonly caused by *Campylobacter jejuni* and *Campylobacter coli* contaminants of chicken meat originating from the intestines of broilers. The study was conducted to examine the prevalence of *Campylobacter* species in chicken meat production in Bosnia and Herzegovina, during 2023, depending on the sampling season. The strategy to control the spread of campylobacteriosis includes laboratory processing of samples from production throughout the year, due to climate change, with the aim of expanding knowledge and adopting adequate measures to combat this public health problem. The study included a total of 450 samples, 100 samples of chicken meat, 100 samples of processed products, 125 swabs of work surfaces and 125 swabs of workers' hands collected from 2 slaughterhouses with and without HACCP and Halal control systems. After isolation (ISO 10272-2:2017) and identification (MALDI-TOF MS and Vitek 2, PCR and RealTime-PCR), the seasonal nature of *Campylobacter jejuni*, *Campylobacter coli* isolates was analyzed. The results of the study showed that the prevalence of *Campylobacter* species was high in late summer (52%) in chicken meat samples (certified facility A) and early autumn (28%) on work surfaces (uncertified Facility B), while samples of processed products were negative. *Campylobacter jejuni* was isolated from chicken meat, and *Campylobacter jejuni* and *Campylobacter coli* were isolated from work surfaces. The study confirmed the seasonal nature of *Campylobacter jejuni*, *Campylobacter coli*, peaks in late summer and early autumn and in certified facilities, which should be taken into account when adopting preventive measures. The study indicates the importance of controlling *Campylobacter* species in Bosnia and Herzegovina, which should be carried out regularly for a more accurate insight into this issue.

Keywords: *Campylobacter* species, chicken meat and products, working surfaces, worker's hands, chicken meat production, seasonality of isolates

ISPITIVANJE SEZONALNOSTI IZOLATA *CAMPYLOBACTER SPECIES* IZ UZORAKA U PROIZVODNJI PILEĆEG MESA

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SAŽETAK

Kampilobakterioza je sezonska zoonoza koju najčešće uzrokuju *Campylobacter jejuni* i *Campylobacter coli* kontaminanti pilećeg mesa koji vode porijeklo iz crijeva brojlera. Istraživanje je provedeno s ciljem ispitivanja zastupljenosti *Campylobacter species* u proizvodnji pilećeg mesa u Bosni i Hercegovini, tokom 2023. godine, u zavisnosti od sezone uzorkovanja. Strategija kontrole širenja kampilobakterioze uključuje laboratorijsku obradu uzoraka iz proizvodnje tokom cijele godine, zbog klimatskih promjena, sa svrhom proširenja znanja i donošenja adekvatnih mjera za suzbijanje ovog javnozdravstvenog problema. Istraživanjem je obuhvaćeno ukupno 450 uzoraka, 100 uzoraka pilećeg mesa, 100 uzoraka prerađevina, 125 briseva radnih površina i 125 briseva ruku radnika prikupljenih iz 2 klaonice sa i bez HACCP i Halal sistema kontrole. Nakon izolacije (ISO 10272-2:2017) i identifikacije (MALDI-TOF MS i Vitek 2, PCR i RealTime-PCR), analizirana je sezonska priroda izolata *Campylobacter jejuni*, *Campylobacter coli*. Rezultati istraživanja su pokazali da je zastupljenost *Campylobacter species* bila visoka krajem ljeta (52%) u uzorcima pilećeg mesa (certificirani objekat A) i početkom jeseni (28%) na radnim površinama (necertificirani Objekat B), dok su uzorci prerađevina bili negativni. Iz pilećeg mesa izolovana je *Campylobacter jejuni*, a sa radnih površina *Campylobacter jejuni* i *Campylobacter coli*. Istraživanje je potvrdilo sezonsku prirodu *Campylobacter jejuni*, *Campylobacter coli*, vrhunce krajem ljeta i početkom jeseni i u certificiranim objektima, što treba uzeti u obzir prilikom donošenja preventivnih mjera. Istraživanje ukazuje na značaj kontrole *Campylobacter spp.* u Bosni i Hercegovini, što bi trebalo redovno provoditi radi egzaktnijeg uvida u ovu problematiku.

Ključne riječi: *Campylobacter species*, pileće meso i prerađevine, radne površine, ruke radnika, proizvodnja pilećeg mesa, sezonalnost izolata

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

METABOLOMICS-BASED PROFILING OF PORCINE AND BOVINE GELATIN FOR HALAL AUTHENTICATION

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ABSTRACT

Gelatin is widely used in the food, pharmaceutical, and cosmetic industries, where its source is critical for halal authentication and adulteration detection. This study employs a metabolomics-based approach using liquid chromatography coupled with quadrupole time-of-flight tandem mass spectrometry (LC-QTOF-MS/MS) to comprehensively profile the metabolic differences between porcine and bovine gelatin. Untargeted metabolomics was conducted to identify species-specific metabolic signatures. Principal component analysis (PCA) and partial least squares discriminant analysis (PLS-DA) were applied to detect metabolic variations and classify gelatin sources with high accuracy. The results showed that PCA clearly distinguished between bovine and porcine gelatin. Several metabolites with high variable importance in projection (VIP) scores, including sphingomyelin SM(d18:0/18:1(9Z)), cytidine 5'-diphosphocholine, 3-methylcytidine, NAD⁺, ATP, and Tyr-Tyr, were found in higher abundance in porcine gelatin, whereas cytidine-5'-triphosphate, tryptophan, and phenylalanine were more prevalent in bovine gelatin. These metabolic differences arise due to species-specific variations in collagen breakdown and nucleotide turnover pathways. The LC-QTOF-MS/MS-based metabolomics workflow provides high sensitivity and a non-targeted analytical platform for gelatin authentication, preventing fraudulent substitutions in the food supply chain. This method offers a robust, data-driven solution for distinguishing gelatin sources and could also be used in halal applications.

Keywords: *Metabolomics, Bovine Gelatin, Porcine Gelatin, Halal, LC-QTOF-MS/MS*

PROFILIRANJE SVINJSKOG I GOVEĐEG ŽELATINA ZASNOVANO NA METABOLOMICI ZA HALAL AUTENTIFIKACIJU

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Sažetak

Želatin se široko koristi u prehrambenoj, farmaceutskoj i kozmetičkoj industriji, gdje je njegovo porijeklo ključno za halal autentifikaciju i otkrivanje falsifikata. Ova studija koristi pristup zasnovan na metabolomici, koristeći tečnu hromatografiju u kombinaciji s kvadrupolnim vremenski-of-flajt tandem masenim spektrometrom (LC-QTOF-MS/MS), kako bi se detaljno profilisale metaboličke razlike između svinjskog i goveđeg želatina. Neselektivna (untargeted) metabolomika je provedena s ciljem identifikacije metaboličkih potpisa specifičnih za vrstu. Primijenjene su analiza glavnih komponenti (PCA) i parcijalna najmanje kvadrata diskriminantna analiza (PLS-DA) za otkrivanje metaboličkih varijacija i klasifikaciju izvora želatina s visokom tačnošću. Rezultati su pokazali da PCA jasno razlikuje goveđi od svinjskog želatina. Nekoliko metabolita s visokim VIP vrijednostima, uključujući sfingomijelin SM(d18:0/18:1(9Z)), citidin 5'-difosfokolin, 3-metilcitidin, NAD⁺, ATP i Tyr-Tyr, pronađeni su u većoj količini u svinjskom želatinu, dok su citidin-5'-trifosfat, triptofan i fenilalanin bili prisutniji u goveđem želatinu. Ove metaboličke razlike proizlaze iz specifičnih varijacija po vrstama u razgradnji kolagena i putevima razmjene nukleotida. Metabolomički pristup zasnovan na LC-QTOF-MS/MS nudi visoku osjetljivost i neselektivnu analitičku platformu za autentifikaciju želatina, sprječavajući prevarne zamjene u lancu prehrambene opskrbe. Ova metoda predstavlja robusno, na podacima zasnovano rješenje za razlikovanje izvora želatina i može se koristiti i u halal kontekstu.

Ključne riječi: *Metabolomika, goveđi želatin, svinjski želatin, halal, LC-QTOF-MS/MS*

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**RIGOROUS SANITARY MEASURES TO REDUCE CAMPYLOBACTER
IN CHICKEN PRODUCTION AS AN ALTERNATIVE TO THE
PROPHYLAXIS USE OF ANTIBIOTICS**

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ABSTRACT

Campylobacteriosis is a leading cause of food poisoning in Europe, the USA, Australia and New Zealand, and identifying reservoirs of infection is important in disease prevention. Although campylobacteriosis is considered rare in Africa, research indicates that chicken meat is contaminated in African countries as well. Monitoring the prevalence of *Campylobacter jejuni* and *Campylobacter coli* in broiler meat production indicates variability depending on the country, season, source of the sample and hygiene in primary production (farms) and broiler meat processing (slaughterhouses/production plants). Therefore, the purpose of this review was to improve the understanding of the impact of implementing appropriate sanitation measures on reducing contamination with *Campylobacter* species in primary production and processing of chicken meat, in facilities with implemented HACCP and Halal control systems. The alignment with EU legislation regulates hygiene criteria in primary production and processing of chicken meat. The application of rigorous hygiene measures at all stages of chicken meat production can reduce the number of thermophilic *Campylobacter* species on broiler chicken carcasses. By setting the recommended EU critical limit of 1000 CFU/g for contamination of broiler neck skin in slaughterhouses, the incidence of campylobacteriosis can be reduced by 40% to 90%.

Keywords: *Antibiotics, Campylobacter, primary production and processing of chicken meat, sanitary measures*

STROGE SANITARNE MJERE ZA SMANJENJE KAMPILOBAKTERA U PROIZVODNJI PILIĆA KAO ALTERNATIVA PROFILAKTIČKOJ UPOTREBI ANTIBIOTIKA

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Sažetak

Kampilobakterioza je vodeći uzrok trovanja hranom u Europi, SAD-u, Australiji i Novom Zelandu, a otkrivanje rezervoara infekcije važno je u prevenciji bolesti. Iako se kampilobakterioza smatra rijetkom u Africi, istraživanja ukazuju na kontaminaciju pilećeg mesa i u afričkim zemljama. Praćenje prevalencije *Campylobacter jejuni* i *Campylobacter coli* u proizvodnji mesa brojlera ukazuje na varijabilnost u zavisnosti od zemlje, sezone, porijekla uzorka i higijene u primarnoj proizvodnji (farme) i preradi mesa brojlera (klaonice/proizvodni pogoni). Stoga je svrha ovog preglednog rada bila poboljšati razumijevanje utjecaja koji primjena odgovarajućih sanitarnih mjera ima na smanjenje kontaminacije *Campylobacter* vrsta u primarnoj proizvodnji i preradi pilećeg mesa, u objektima sa implementiranim HACCP i Halal kontrolnim sistemima. Usklađivanjem sa zakonodavstvom EU uređuju se higijenski kriterijumi u primarnoj proizvodnji i preradi pilećeg mesa. Primjenom rigoroznih higijenskih mjera u svim fazama proizvodnje pilećeg mesa može se smanjiti broj termofilnih vrsta *Campylobacter* na trupovima brojlerskih pilića. Postavljanjem preporučene kritične granice EU od 1000 CFU/g za kontaminaciju kože vrata brojlera u klaonicama, incidencija kampilobakterioze može se smanjiti za 40% do 90%.

Ključne riječi: Antibiotici, *Campylobacter*, primarna proizvodnja i prerada pilećeg mesa, sanitarne mjere

CHAPTER

HALALONMOY
HALALONOMIJA

**BOOK OF ABSTRACTS AND PAPERS FROM THE
3rd EUROPEAN HALAL CONGRESS**

**FROM REGULATION TO REVELATION: TAWHEED,
TASAWWUF, AND THE FUTURE OF HALAL ECONOMICS**

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ABSTRACT

Halal, meaning "permissible" in Islam, encompasses all aspects of human life, reflecting the servitude of mankind to Allah SWT. While halal is often associated with food, beverages, medicine, and cosmetics, its essence extends far beyond material consumption. Islam commands all humans, especially Muslims, to seek and uphold halal in every facet of life. The pursuit of halal is not merely an economic choice but an obligation—an act of jihād that requires diligence, prayer, patience, and complete trust in Allah's provision. However, in modern economic discourse, halal is frequently viewed as a commercial tool rather than a divine principle. While Islam permits profit-seeking through halal means, the reduction of halal to a mere business objective—without reinforcing Tawheed (the oneness of Allah)—risks deviating from its true purpose. Wealth that lacks spiritual grounding can lead to greed, arrogance, and moral decline, stripping individuals of ihsan (excellence) and their innate sense of servitude to Allah. A business model that prioritizes profit over the essence of Tawheed (oneness of God) risks fostering greed and spiritual neglect. Wealth accumulation devoid of spiritual consciousness may lead individuals away from ethical integrity, resulting in moral and societal imbalances. To ensure that economic activities reflect true servitude to Allah SWT, they must integrate the three core principles of Islam: Tawheed (belief and faith), Fiqh (legal and regulatory framework), and Tasawwuf (ethics and spirituality). While contemporary Muamalat (Islamic commercial law) focuses predominantly on Fiqh—addressing issues such as riba (usury), gharar (uncertainty), and impurities in consumables—discussions on spiritual dimensions, such as trust in Allah and the moral impact of business practices, remain underemphasized. Without the foundation of Tawheed, halal practices risk becoming mere regulatory instruments devoid of deeper spiritual purpose. Factors on trust in God and the Day of Resurrection, impact on human morals as well as the spiritual development of the public were not discussed together. Without the soul of *Tawheed*, the Islamic *Muamalat* developed is only a halal instrument from a physical realm only without a comprehensive system that involves the work of developing the soul and spirituality of Islam. Therefore, this paper attempt to bring forward the relationship between *Tawheed* and *Tasawwuf* in developing submission to Allah by promoting Halal in the pursuit of permissible profit in Islam. Also covered is the explanation on permissible profit rate that are considered non oppressive to the customers according to the opinion of the jurists. This paper explores the intrinsic link between Tawheed and Tasawwuf in fostering true submission to Allah through the promotion of halal in wealth generation that

goes beyond compliance to embody a comprehensive Islamic ethical framework. It also examines the concept of permissible profit rates that uphold justice and prevent exploitation, as discussed by Islamic jurists.

Keywords: *spirituality in halal industry, halal economic framework, halal and tasawwuf, tawheed in business*

OD PROPISA DO OBJAVE: TEVHID, TESAVUF I BUDUĆNOST HALAL EKONOMIJE

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SAŽETAK

Halal, što na arapskom znači "dozvoljeno" u islamu, obuhvata sve aspekte ljudskog života i odražava čovjekovu pokornost Allahu, dž.š. Iako se halal najčešće povezuje s hranom, pićem, lijekovima i kozmetikom, njegova suština seže daleko izvan materijalne potrošnje. Islam naređuje svim ljudima, a posebno muslimanima, da teže halal načinu života i da ga se pridržavaju u svim aspektima svakodnevnice. Težnja ka halal-u nije samo ekonomski izbor, već obaveza – čin džihada koji zahtijeva predanost, dovu, strpljenje i potpuno oslanjanje na Allahovu opskrbu. Međutim, u savremenom ekonomskom diskursu, halal se često posmatra više kao komercijalno sredstvo nego kao božanski princip. Iako islam dozvoljava sticanje profita putem halal puteva, svođenje halala samo na poslovni cilj – bez osnaživanja tevhida (vjerovanja u jednoću Allaha) – rizikuje da se izgubi njegova prava svrha. Imovina bez duhovne osnove može dovesti do pohlepe, oholosti i moralne dekadencije, oduzimajući pojedincima ihsan (izvršnost) i njihov urođeni osjećaj pokornosti Allahu. Poslovni model koji stavlja profit iznad suštine tevhida može podstaći pohlepu i zanemarivanje duhovnosti. Sticanje bogatstva bez duhovne svijesti može ljude udaljiti od etičkog integriteta, što dovodi do moralne i društvene neravnoteže. Da bi se osiguralo da ekonomske aktivnosti zaista odražavaju pokornost Allahu, dž.š., potrebno je integrisati tri temeljna principa islama: tevhid (vjerovanje i vjera), fikh (pravni i regulatorni okvir) i tasavvuf (etika i duhovnost). Dok se savremena islamska trgovina (muamalat) uglavnom fokusira na fikh – baveći se pitanjima kao što su riba (kamata), garar (neizvjesnost) i nečistoće u proizvodima – duhovne dimenzije, poput povjerenja u Allaha i moralnog uticaja poslovnih praksi, često su zanemarene. Bez temelja tevhida, halal prakse mogu postati samo regulatorni alati, lišeni dublje duhovne svrhe. Povjerenje u Allaha i Sudnji dan, uticaj na ljudski moral, kao i duhovni razvoj zajednice nisu dovoljno obuhvaćeni u ovim raspravama. Bez duše tevhida, islamska muamalat se razvija samo kao fizička forma halala, bez sveobuhvatnog sistema koji uključuje izgradnju duše i duhovnosti islama. Zbog toga ovaj rad pokušava istaći vezu između tevhida i tasavvufa u razvijanju pokornosti Allahu kroz promovisanje halala u potrazi za dozvoljenom zaradom u islamu. Također se obrađuje pojašnjenje stope dozvoljenog profita koja se smatra nepritisakom za kupce, prema mišljenju islamskih pravnika. Ovaj rad istražuje unutarnju povezanost između tevhida i tasavvufa u jačanju istinske pokornosti Allahu kroz halal u sticanju imetka, idući dalje od puke usklađenosti s propisima i

obuhvatajući sveobuhvatan islamski etički okvir. Također se razmatra koncept dozvoljenih profitnih stopa koje čuvaju pravdu i sprečavaju eksploataciju, kako su o tome govorili islamski učenjaci.

Ključne riječi: duhovnost u halal industriji, halal ekonomski okvir, halal i tesavvuf, tevhid u poslovanju

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

IMPACT OF NEW US TARIFFS ON THE EXPANSION OF THE GLOBAL HALAL MARKET

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ABSTRACT

In April 2025, the administration of President Donald Trump imposed new tariffs on agricultural products from Canada and China, including a 25% tariff on beef and key raw materials for the food industry. This policy has immediate consequences for the global halal market, given that the United States is one of the leading exporters of halal-certified beef, with annual exports of around \$8 billion (total US halal exports are \$12 billion). Much of this beef is exported to Canada for further processing, further complicating the supply chain under the new tariff regime. The introduction of tariffs results in higher production costs, a decrease in the competitiveness of US halal products and a possible disruption in distribution, which could cause a slowdown in growth in a sector that has been experiencing dynamic expansion in recent years. However, the global halal market, estimated to be worth \$7.7 trillion by the end of 2025, continues to show resilience and adaptability. Countries such as Malaysia, Indonesia and Saudi Arabia are identified as key markets for further growth, thanks to the increasing institutionalization of halal certification and growing interest among non-Muslim populations. Export diversification, digitalization of sales and innovation in production are key strategies to mitigate the negative effects of US tariffs. It is also possible to use the US Constitution, specifically the First Amendment that protects freedom of religion, as a basis for lobbying against tariff measures that disproportionately affect Muslim consumers and producers. In conclusion, although Trump's tariffs pose a serious challenge, they do not stop the already begun transformation and expansion of the halal industry, but rather indicate the need for strategic shifts towards greater global integration and resilience.

Keywords: *Global halal market, halal food, US tariffs, trade war, strategic halal policy, lobbying against tariff measures*

UTICAJ NOVIH AMERIČKIH CARINA NA EKSPANZIJU GLOBALNOG HALAL TRŽIŠTA

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SAŽETAK

U aprilu 2025. godine, administracija predsjednika Donalda Trampa uvela je nove carine na poljoprivredne proizvode iz Kanade i Kine, uključujući i 25% carine na govedinu i sirovine ključne za prehrambenu industriju. Ova politika ima neposredne posljedice na globalno halal tržište, s obzirom na to da su Sjedinjene Američke Države jedan od vodećih izvoznika halal certificirane govedine, s godišnjim izvozom od oko 8 milijardi USD (ukupni američki izvoz halal proizvoda glasi na 12 milijardi USD). Veliki dio ove govedine se izvozi u Kanadu radi daljnje prerade, što dodatno komplikuje lanac snabdijevanja pod novim carinskim režimom. Uvođenje carina rezultira višim troškovima proizvodnje, smanjenjem konkurentnosti američkih halal proizvoda i mogućim poremećajem u distribuciji, što može izazvati usporavanje rasta u sektoru koji je u posljednjim godinama bilježio dinamičnu ekspanziju. Ipak, globalno halal tržište, čija se vrijednost procjenjuje na 7,7 triliona USD do kraja 2025. godine, nastavlja pokazivati otpornost i prilagodljivost. Zemlje kao što su Malezija, Indonezija i Saudijska Arabija prepoznate su kao ključna tržišta za daljnji rast, zahvaljujući sve većoj institucionalizaciji halal certifikacije i rastućem interesu među ne-muslimanskom populacijom. Diversifikacija izvoza, digitalizacija prodaje i inovacije u proizvodnji predstavljaju glavne strategije za ublažavanje negativnih efekata američkih carina. Također, moguće je korištenje američkog Ustava, konkretno Prvog amandmana koji štiti slobodu vjere, kao temelja za lobiranje protiv carinskih mjera koje disproporcionalno pogađaju muslimanske potrošače i proizvođače. Zaključno, iako Trampove carine predstavljaju ozbiljan izazov, one ne zaustavljaju već započetu transformaciju i širenje halal industrije, već ukazuju na potrebu za strateškim pomacima ka većoj globalnoj integraciji i otpornosti.

Ključne riječi: *Globalno halal tržište, halal hrana, američke carine, trgovinski rat, strateška halal politika, lobiranje protiv carinskih mjera*

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

ESTABLISHING BOSNIA AND HERZEGOVINA AS A HALAL FOOD HUB FOR THE WESTERN BALKANS

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ABSTRACT

The possibility of opening Bosnia and Herzegovina as a central Halal food hub and distribution point for the Western Balkans, and therefore to assess the strategic implications of this establishment is an important issue. With its distinctive geographical location, Bosnia and Herzegovina already developed Halal certification environment and the cultural background in accordance with the Islamic dietary rules, Bosnia and Herzegovina shows tremendous potential to benefit from the global Halal trend that is on the rise. The Western Balkans, commonly including Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, and Serbia, is home to a large Muslim population. According to estimates, there are approximately 6.4 million Muslims in the Western Balkans. If the specific data on the purchasing power of Muslims from the Western Balkans is missing, however, the more generic data about economy and demographic characteristics does help understand the purchasing power of mentioned group. The state of Halal food production and certification in Bosnia and Herzegovina is presented, analysis is made relative market on the Western Balkans, and suggestions are given of a holistic approach for establishing sustainable and competent Halal food corridor. The Halal food market is growing rapidly to meet the demands of the expanding Muslim population and more consumers care about ethical and quality food production. With its increasingly diverse population and economic integration among the countries in the region, the potential market for Halal products in the Western Balkans is our target. Bearing in mind the potential of Bosnia and Herzegovina with its significant Muslim population and the years of promotion of Halal certification standards, it is indicated that the state can use this segment of the market. The research describes the situation and production of Halal food and Halal certification in Bosnia and Herzegovina and the work of the Bosnia and Herzegovina Halal Agency, established in 2006 with the goal of promoting and standardizing Halal production. It also examines the current infrastructure in terms of production facilities, logistics networks, and distribution channels, and evaluates their potential to serve a regional Halal food hub. Another important part of this research is its extensive market analysis of the Western Balkans Halal food market, covering demand for Halal products in surrounding states, analysing the structural demographic and consumer preferences and current supply chains. The analysis pinpoints opportunities otherwise and threats that Bosnia and Herzegovina faces in its ambition to become a regional centre, discussing different interpretations of Halal standards and their influence on regional trade. A Halal food hub in Bosnia and Herzegovina

requires the following components: infrastructure, certification and standardization, market development and promotion, regional cooperation, as well as sustainability practices. The study also discusses difficulties such as competition from other Halal food producers, ensuring consistent quality and adherence to Halal standards, the era of multiple regulatory environments, and the impact of political instability in the region. As Bosnia and Herzegovina effectively tackles these challenges and implements the recommended framework, it can solidify its place as a top Halal food hub in the Western Balkans, fostering economic growth, regional integration, and sustainable food practices. The paper ends with an overview of the security aspects of the Bosnia and Herzegovina-UAE relationship and considers the potential for enhanced cooperation in this area as well.

Keywords: *halal food, halal hub, supply chain, islamic economy, Bosnia, Western Balkans*

USPOSTAVLJANJE BOSNE I HERCEGOVINE KAO HALAL CENTRA ZA HRANU NA ZAPADNOM BALKANU

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SAŽETAK

Mogućnost otvaranja Bosne i Hercegovine kao centralnog halal centra za hranu i distributivne tačke za Zapadni Balkan, te procjena strateških implikacija tog uspostavljanja, predstavlja značajno pitanje. Zahvaljujući svom povoljnom geografskom položaju, već razvijenom sistemu halal certifikacije i kulturnom naslijeđu koje je u skladu s islamskim prehrambenim pravilima, Bosna i Hercegovina pokazuje ogroman potencijal da iskoristi globalni trend rasta halal tržišta. Zapadni Balkan, koji obično uključuje Albaniju, Bosnu i Hercegovinu, Kosovo, Crnu Goru, Sjevernu Makedoniju i Srbiju, dom je velikom broju muslimanskog stanovništva. Prema procjenama, u regiji Zapadnog Balkana živi oko 6,4 miliona muslimana. Iako nedostaju tačni podaci o kupovnoj moći muslimana iz regije, opći ekonomski i demografski podaci omogućavaju uvid u njihovu potrošačku snagu. U radu se predstavlja trenutno stanje halal proizvodnje i certifikacije u Bosni i Hercegovini, analizira se relevantno tržište Zapadnog Balkana i daju se prijedlozi za uspostavljanje održivog i kompetentnog halal prehrambenog koridora putem holističkog pristupa. Tržište halal hrane brzo raste kako bi odgovorilo na potrebe sve većeg muslimanskog stanovništva, ali i sve većeg broja potrošača koji brinu o etičkoj i kvalitetnoj proizvodnji hrane. S obzirom na sve raznovrsnije stanovništvo i ekonomsku integraciju među državama regije, tržišni potencijal za halal proizvode na Zapadnom Balkanu predstavlja našu ciljnu grupu. Imajući u vidu potencijal Bosne i Hercegovine sa značajnim muslimanskim stanovništvom i višegodišnjom promocijom halal standarda, ukazuje se na mogućnost da država iskoristi ovaj segment tržišta. U radu se opisuje stanje halal proizvodnje i certifikacije u Bosni i Hercegovini, kao i rad Agencije za halal certifikaciju BiH, osnovane 2006. godine s ciljem promocije i standardizacije halal proizvodnje. Također se razmatra postojeća infrastruktura u smislu proizvodnih kapaciteta, logističkih mreža i distribucijskih kanala, te se procjenjuje njihov potencijal da opslužuju regionalni halal centar. Drugi važan segment istraživanja jeste detaljna analiza tržišta halal

hrane na Zapadnom Balkanu, uključujući potražnju za halal proizvodima u okolnim državama, strukturalnu demografiju, potrošačke preferencije i postojeće lance snabdijevanja. Analiza ukazuje na prilike i prijetnje s kojima se Bosna i Hercegovina suočava u svojoj težnji da postane regionalni centar, razmatrajući različita tumačenja halal standarda i njihov uticaj na regionalnu trgovinu. Da bi halal centar hrane u Bosni i Hercegovini bio održiv, potrebno je ispuniti sljedeće komponente: infrastruktura, certifikacija i standardizacija, razvoj i promocija tržišta, regionalna saradnja i prakse održivosti. Studija se također bavi izazovima kao što su konkurencija drugih proizvođača halal hrane, osiguranje dosljednog kvaliteta i poštivanja halal standarda, postojanje različitih regulatornih okruženja i utjecaj političke nestabilnosti u regiji. Ako Bosna i Hercegovina efikasno odgovori na ove izazove i primijeni preporučeni okvir, može učvrstiti svoju poziciju kao vodeći halal centar hrane na Zapadnom Balkanu, podstičući ekonomski rast, regionalnu integraciju i održive prakse u prehrambenoj industriji. Rad se završava pregledom sigurnosnih aspekata odnosa između Bosne i Hercegovine i Ujedinjenih Arapskih Emirata (UAE) te razmatranjem potencijala za jačanje saradnje i u ovom području.

Ključne riječi: halal hrana, halal hub, lanac snabdijevanja, islamska ekonomija, Bosna, Zapadni Balkan

CHAPTER

HALAL IN EDUCATION AND ISLAMIC LAW
HALAL U OBRAZOVANJU I ISLAMSKOM PRAVU

**BOOK OF ABSTRACTS AND PAPERS FROM THE
3rd EUROPEAN HALAL CONGRESS**

**INTEGRATING HALAL EDUCATION INTO ACADEMIA: A GLOBAL
REVIEW AND FRAMEWORK FOR CURRICULUM DEVELOPMENT**

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ABSTRACT

Halal represents a comprehensive lifestyle for Muslims, extending beyond food to encompass pharmaceuticals, cosmetics, finance, and logistics. The growing demand for certified Halal products necessitates qualified professionals to conduct audits and implement standards. However, current training initiatives predominantly focus on short-term workshops, while formal degree programs in Halal studies remain limited. This article reviews existing Halal education programs globally, identifying key academic institutions and research centers. It proposes integrating specialized Halal courses into core degrees (e.g., pharmacy, food technology) to bridge industry-academia gaps. Such reforms could standardize expertise and support the expanding Halal market.

Keywords: *Halal education, curriculum development, certification, academia, pharmaceuticals*

INTEGRISANJE HALAL OBRAZOVANJA U AKADEMSKE OKVIRE: GLOBALNI PREGLED I OKVIR ZA RAZVOJ NASTAVNOG PLANA

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SAŽETAK

Halal predstavlja sveobuhvatan stil života za muslimane, koji nadilazi ishranu i obuhvata farmaceutske proizvode, kozmetiku, finansije i logistiku. Rastuća potražnja za certificiranim halal proizvodima zahtijeva kvalificirane stručnjake za provođenje audita i primjenu standarda. Međutim, postojeće edukacijske inicijative uglavnom se fokusiraju na kratkoročne radionice, dok formalni studijski programi iz oblasti halal studija ostaju ograničeni. Ovaj rad daje pregled postojećih halal obrazovnih programa na globalnom nivou, identificirajući ključne akademske institucije i istraživačke centre. Predlaže se integracija specijaliziranih halal kurseva u osnovne studijske programe (npr. farmacija, tehnologija hrane) s ciljem prevazilaženja jaza između industrije i akademske zajednice. Takve reforme mogle bi standardizirati stručnost i podržati rastuće halal tržište.

Ključne riječi: halal obrazovanje, razvoj nastavnog plana, certificiranje, akademska zajednica, farmaceutski proizvodi

**BOOK OF ABSTRACTS AND PAPERS FROM THE
3rd EUROPEAN HALAL CONGRESS**

**HALAL QUALITY AND ISLAMIC ECONOMY IN HIGHER
EDUCATION
IN BOSNIA AND HERZEGOVINA**

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ABSTRACT

In Bosnia and Herzegovina, it can be said that we do not have study programs on halal when it comes to higher education. Higher education institutions in Bosnia and Herzegovina do not follow the labor market needs or the needs of employers for personnel who have professional competencies, knowledge, and skills in the field of halal. The same situation applies to the study program of Islamic economics. There is a need for personnel, but this is not recognized by higher education institutions in Bosnia and Herzegovina. Education of personnel about halal and halal quality is based on three main pillars: Islamic teachings on halal, modern technologies of production and processing, distribution, and trade of halal products, as well as general principles and concepts of the halal product quality system. The Agency for Certifying Halal Quality in Bosnia and Herzegovina, as well as business entities in the fields of tourism, hospitality, gastronomy, production, and distribution of halal products that have halal quality certificates are obliged to internally educate their staff about the halal quality system. Furthermore, there is a clear need for halal certificates for individuals (chefs, head chefs, restaurant managers, managers) working in business entities that have halal certification. Halal quality - concept and standardization is included in the Curriculum and Program (CPP), as one of the seven subjects of the study program Islamic Economics and Financial Industry at the master's level at the FINRA University Tuzla, which is in the licensing procedure and is planned to be implemented in the upcoming academic year 2025/2026. This CPP contains subjects in the fields of Islamic finance, Islamic banking, Islamic insurance (takaful), and subjects Halal quality - concept and standardization, Islamic business ethics, and International financial management.

Keywords: *Halal education, Higher education in BiH, Halal quality, Islamic economics, Professional competencies*

HALAL KVALITETA I EKONOMIJA ISLAMA U VISOKOM OBRAZOVANJU U BOSNI I HERCEGOVINI

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SAŽETAK

U Bosni i Hercegovini može se kazati da nemamo studijskih programa o halalu kad je u pitanju visoko obrazovanje. Visokoškolske ustanove u Bosni i Hercegovini ne prate potrebe tržišta rada odnosno potrebe poslodavaca za kadrovima koji imaju stručne kompetencije, znanje i vještine iz oblasti halala. Ista je situacija i sa studijskim programom Islamska ekonomija. Postoji potreba za kadrovima, ali to visokoškolske ustanove u Bosni i Hercegovini ne prepoznaju. Obrazovanje kadrova o halalu odnosno halal kvaliteti se zasniva na tri bazna stuba: islamsko učenje o halalu, savremene tehnologije proizvodnje i prerade, distribucije i prometa halal proizvoda, te opći principi i načela sistema kvaliteta halal proizvoda. Agencija za certificiranje halal kvalitete u Bosni i Hercegovini, te poslovni subjekti u oblasti turizma, ugostiteljstva, gastronomije, proizvodnje i distribucije halal proizvoda, koji imaju certifikate halal kvalitete su prinuđeni da interno educiraju kadrove o sistemu halal kvalitete. Također, evidentna je potreba za halal certifikatima osoba (kuhari, šefovi kuhinje, šefovi restorana, menadžeri), koje su zaposlene u poslovnim subjektima koji imaju halal certifikat. Halal kvalitet - koncept i standradizacija je predviđen u Nastavnom planu i programu (NPP), kao jedan od sedam predmeta studijskog programa Islamska ekonomija i finansijska industrija na magistarskom studiju Univerziteta FINRA Tuzla, koji je u proceduri licenciranja i koji se planira realizirati u narednoj akademskoj 2025/2026. Ovaj NPP sadrži predmete iz oblasti islamskih finansija, islamskog bankarstva, islamskog osiguranja (tekaful), te predmete Halal kvalitet - koncept i standradizacija, Islamska poslovna etika i Međunarodni finansijski menadžment.

Ključne riječi: Halal obrazovanje, Visoko obrazovanje u BiH, Halal kvaliteta, Islamska ekonomija, Profesionalne kompetencije

BOOK OF ABSTRACTS AND PAPERS FROM THE 3rd EUROPEAN HALAL CONGRESS

HALAL ETHICS: LABOR STANDARDS IN THE FRAMEWORK OF ISLAMIC LAW AND ESG

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ABSTRACT

The discourse on halal compliance has traditionally centered on ingredients, technical processes, and ritual requirements. However, this narrow lens risks omitting critical ethical dimensions that are equally rooted in Islamic principles. This paper argues that a comprehensive understanding of *halal* must extend beyond the material composition of products to include the ethical treatment of labor, environmental stewardship, and governance practices — aligning with global ESG (Environmental, Social, and Governance) standards where they are consistent with the Qur'an and Sunnah. Drawing from classical Islamic jurisprudence and contemporary labor frameworks, we explore the imperative of just wages, safe working conditions, prohibition of exploitation, and fair contractual dealings as prerequisites for true halal certification. We propose that labor standards be integrated into halal certification regimes, particularly in light of the Prophet Muhammad's (peace be upon him) emphasis on dignity in work and justice in economic transactions. This ethical expansion of halal aligns with *maqasid al-shari'ah* (the higher objectives of Islamic law), especially in safeguarding human welfare and dignity (*karamah insaniyyah*). In an era of global trade and complex supply chains, Muslim consumers and producers have a shared responsibility to uphold not only ritual but also moral integrity in commerce. Furthermore, the upcoming EU Corporate Sustainability Due Diligence Directive (CSDDD), which mandates that large European corporations address human rights and labor risks in their supply chains by July 2027, presents a timely opportunity. This paper argues that halal and Shariah-compliant frameworks, with their embedded ethical labor requirements, can complement and even preemptively fulfill CSDDD mandates. Aligning halal standards with CSDDD not only facilitates smoother business operations within the EU but also positions Islamic ethical models as valuable tools for global sustainability and compliance. The future of halal must be holistic—merging spiritual authenticity with social justice and corporate accountability. This paper seeks to initiate a critical conversation among scholars, certification bodies, and industry stakeholders about embedding labor rights within halal certification systems. It emphasizes that ethical labor practices are not merely complementary but essential to the halal identity of products and services. In doing so, we underscore that the future of halal must be holistic, integrating both spiritual and social justice commitments grounded in Islamic teachings.

Keywords: *Halal Ethics, Islamic Ethics, Labor Standards, Halal, ESG*

HALAL ETIKA: RADNI STANDARDI U OKVIRU ISLAMSKOG PRAVA I ESG-A

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SAŽETAK

Diskusija o halal usklađenosti tradicionalno se fokusirala na sastojke, tehničke procese i ritualne zahtjeve. Međutim, ovako uzak pristup rizikuje da izostavi ključne etičke dimenzije koje su također duboko ukorijenjene u islamskim principima. Ovaj rad tvrdi da sveobuhvatno razumijevanje halala mora ići dalje od materijalnog sastava proizvoda te uključivati etički tretman radne snage, brigu o okolišu i prakse upravljanja — u skladu s globalnim ESG (ekološki, društveni i upravljački) standardima, gdje su u skladu s Kur'anom i Sunnetom. Polazeći od klasične islamske jurisprudencije i savremenih okvira za radna prava, istražujemo važnost pravednih plata, sigurnih radnih uslova, zabrane iskorištavanja i poštenih ugovornih odnosa kao preduslova za istinsku halal certifikaciju. Predlažemo da se standardi rada integriraju u sisteme halal certifikacije, posebno u svjetlu naglaska koji je poslanik Muhammed, alejhi selam, stavljao na dostojanstvo u radu i pravdu u ekonomskim transakcijama. Ova etička ekspanzija halala u skladu je s maqasid al-shari'ah (višim ciljevima islamskog prava), posebno u pogledu zaštite ljudskog dostojanstva (karamah insaniyyah) i općeg dobra. U eri globalne trgovine i složenih lanaca snabdijevanja, muslimani potrošači i proizvođači dijele odgovornost za očuvanje ne samo ritualne, već i moralne ispravnosti u trgovini. Nadalje, nadolazeća Direktiva EU o korporativnoj održivosti i dužnoj pažnji (CSDDD), koja obavezuje velike evropske kompanije da do jula 2027. adresiraju rizike u pogledu ljudskih prava i radnih uslova u svojim lancima snabdijevanja, predstavlja pravovremenu priliku. Ovaj rad tvrdi da halal i šerijatski usklađeni okviri, sa svojim ugrađenim etičkim zahtjevima za rad, mogu dopuniti pa čak i unaprijed ispuniti zahtjeve CSDDD-a. Usklađivanje halal standarda sa CSDDD-om ne samo da olakšava poslovanje unutar EU, već i pozicionira islamske etičke modele kao vrijedne alate za globalnu održivost i usklađenost. Budućnost halala mora biti holistička — spajajući duhovnu autentičnost sa društvenom pravdom i korporativnom odgovornošću. Ovaj rad ima za cilj da pokrene kritičan dijalog među akademikima, tijelima za certifikaciju i industrijskim akterima o uključivanju radnih prava u halal certifikacijske sisteme. Naglašava se da etička radna praksa nije samo dodatak, već suštinski dio halal identiteta proizvoda i usluga. Time se još jednom ističe da budućnost halala mora biti sveobuhvatna, integrirajući kako duhovne tako i društvene vrijednosti utemeljene na islamskom učenju.

Ključne riječi: halal etika, islamska etika, radni standardi, halal, ESG

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1st INTERNATIONAL CONFERENCE OF

CONTEMPORARY **HALAL & FATWA** 2024

ABSTRACT EBOOK

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Welcome Address

Assalamu'alaikum warahmatullahiwa barakatuh,

Distinguished Guests, Esteemed Scholars, and Honored Participants,

It is with great pleasure that I welcome you all to the International Conference of Contemporary Halal and Fatwa (ICCoHaF 2024). As the Vice Chancellor of Universiti Sains Islam Malaysia (USIM), I am honored to witness this significant gathering of experts, scholars, and industry leaders from across the globe.

At USIM, we are committed to advancing the integration of Naqli (revealed) and Aqli (rational) knowledge, and IFFAH's work in the fields of fatwa and halal perfectly embodies this philosophy. This conference not only strengthens our academic and research pursuits but also aligns with USIM's aspiration to be a Barakah campus—a campus that embodies excellence in both worldly knowledge and spiritual values.

ICCoHaF 2024 represents an invaluable opportunity for us to address the contemporary challenges faced by Muslim communities worldwide. The exchange of ideas and expertise over these two days will undoubtedly shape the future of fatwa and halal industries, ensuring they meet the highest ethical standards and serve the needs of an ever-evolving global landscape.

I extend my deepest gratitude to the organizers, co-organizers, sponsors, speakers, and all participants. Your efforts and contributions have made this conference possible, and I wish you all a fruitful and successful experience.

Wa billahi taufiq wal hidayah,

Wassalamu'alaikum warahmatullahi wabarakatuh.

PROFESOR DATO' Ts. DR. SHARIFUDIN MD SHAARANI

VICE-CHANCELOER UNIVERSITI SAINS ISLAM MALAYSIA (USIM)

Message from Organiser

The Institute of Fatwa and Halal (IFFAH) is a Center of Excellence (CoE) at Universiti Sains Islam Malaysia (USIM). IFFAH aims to establish a global niche in holistic expertise that benefits the public in matters of fatwa and halal. The institute is deeply committed to USIM's aspiration of becoming a Barakah campus by integrating Naqli and Aqli knowledge in both of these vital areas.

IFFAH offers comprehensive fatwa and halal training, analytical lab services, and conducts research and innovation in these fields. Additionally, we are involved in book and journal publications, as well as providing consultation services related to fatwa and halal. One of IFFAH's key objectives is to educate the community through scholarly work on fatwa and halal, which has led to the organization of the International Conference of Contemporary Halal and Fatwa (ICCoHaF 2024).

The knowledge surrounding fatwa and halal is continuously evolving. IFFAH recognizes and embraces the advancements in knowledge and technology, and this conference serves as a platform for experts to share their insights and expertise. The support from ICCoHaF's co-organizers and our sponsors has been instrumental in making ICCoHaF 2024 a success.

I hope that throughout this conference, all panel experts and participants will gain a wealth of knowledge regarding contemporary fatwa and halal issues and build meaningful networks during these two days. I am particularly grateful to all the committee members for their dedication in organizing this event. Lastly, I wish to extend my heartfelt thanks to our co-organizers, sponsors, keynote speakers, invited speakers, panelists, and participants for their invaluable contributions to this conference.

ASSOC. PROF. DR. NAZARIYAH YAHAYA

DIRECTOR ICCOHAF 2024

About ICCoHaF 2024

1. BACKGROUND

The International Conference of Halal and Fatwa (ICCoHaF) 2024 is a dual-event conference and virtual innovation exhibition. ICCoHaF is a cutting-edge platform that unites entrepreneurs, researchers, and innovators from many fields to present innovative ideas and products. At the same time, our innovation expo provides a fantastic venue for showcasing cutting-edge products and technology in worldwide businesses and higher education institutions (IHL). This conference aims to provide a platform for in-depth discussions, knowledge exchange, and critical analysis of issues about Fatwa and Halal in contemporary times. The conference recognizes the significance of Fatwa, which refers to the legal opinions and rulings provided by Islamic scholars based on their understanding of Islamic sources, principles, and jurisprudence. Fatwas are crucial in guiding Muslims in faith, ethics, social conduct, and personal and communal duties.

Moreover, Fatwas also addresses contemporary challenges and emerging issues Muslims face globally. The Halal industry, encompassing food, beverages, pharmaceuticals, cosmetics, and other consumer goods, has witnessed significant growth and international recognition in recent years. Halal certification ensures that products comply with Islamic dietary laws and ethical standards, assuring Muslim consumers. This conference acknowledges the expanding scope and importance of the Halal industry and aims to explore its various dimensions, challenges, and opportunities. The meeting will feature keynote speeches, panel discussions, and research presentations on a wide range of topics related to Fatwa and Halal.

2. OBJECTIVES

ICCoHaF aims to bring together a variety of new developments and challenges in the field of halal integration with science and technology. Its primary mission is to meet the country's needs by sharing technology and disseminating knowledge through strong relationships with industry researchers, scientists, and academics. Among the main objectives of this conference are:

- a) Facilitate the exchange of scholarly research, experiences, and best practices related to Fatwa and Halal, fostering intellectual dialogue among scholars, practitioners and researchers.
- b) Address contemporary challenges and dilemmas Muslim communities face worldwide, seeking insights and guidance from renowned scholars and experts.
- c) Explore the ethical dimensions and principles underlying Halal and Fatwa, emphasizing the importance of justice, transparency and accountability in issuing rulings and ensuring the integrity of the Halal industry.
- d) Encourage dialogue and collaboration among scholars from diverse backgrounds, schools of thought, and legal traditions, promoting a holistic understanding of Halal principles.
- e) Highlight practical aspects of Halal and Fatwa, including the development of standardized guidelines, certification processes and innovative approaches to meet the evolving needs of Muslim consumers.

3. DATE AND VENUE

- 18-19 September 2024 (Wednesday and Thursday)
- Nilai Spring Resort Hotel, Negeri Sembilan, Malaysia

4. TARGET

Participants from local and international scholars in Halal and Fatwa, including:

- Halal Institute in all countries
- Halal industry players
- Government agencies
- Post Graduate students

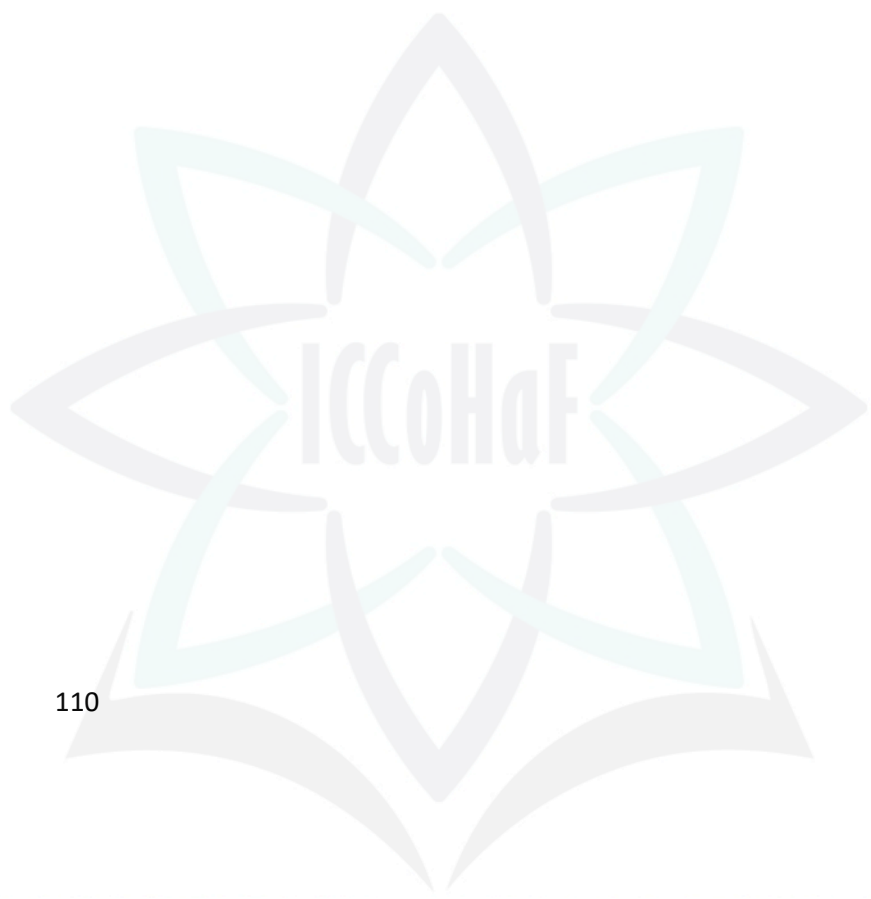
5. THEME OF PAPER PRESENTATION

The theme for ICCoFaH is **Global Halal and Fatwa Horizons In the Modern World.**

6. SUB-THEME

- Fundamental Principles of Fatwa
- Halal Certification and Standards
- Legal Perspectives and Jurisdictions
- Halal and Fatwa Governance
- Islamic Ethics and Sustainability
- IR-4.0, AI And Digital Transformation.
- Consumer Education and Awareness
- Interfaith Practice on Halal and Dietary
- Communication, Branding And Reputation
- Tourism And Hospitality
- Halal Science and Gastronomy
- Medical and health tourism
- Halal Education, Talent And Capacity Building
- Halal Economy
- Halal Lifestyle

Keynote Speakers, Invited Speakers & Panels List





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DATO DR. SIRAJUDDIN SUHAIMEE

Deputy Director (Policy)
Jabatan Kemajuan Islam Malaysia (JAKIM)
Fostering Regional Collaboration
in Halal Biotech: The Asia Pacific
Consortium's Role in Ethical
and Scientific Advancements



**PROFESSOR DATO' TS.
DR. SHARIFUDIN MD. SHAARANI**

Vice Chancellor
University Sains Islam Malaysia (USIM)
Unveiling Opportunities:
Addressing Challenges
in Malaysia's Halal Industry

KEYNOTE SPEECH

DR ABDELHAK EL KOUANI

Scharia Board Director
Halal Control, Germany
Bridging Tradition and Modernity:
Navigating Fatwa and Halal
Issues in Europe



PROF DR. DIANA NUR AFIFAH

S.T.P., M. Si,
University Diponegoro, Indonesia
The Role of Biotechnology in Halal Food
Production: Innovations and Challenges
in Meeting Religious and
Scientific Standards

INVITED SPEAKER



MODERATOR

DR. MUHAMMAD NIZAM AWANG @ ALI
Institute of Fatwa and Halal (IFFAH)
University Sains Islam Malaysia (USIM)



PANEL 1

PROF. DR. IRWANDI JASWIR
International Institute for Halal
Research and Training (INHART)
International Islamic University Malaysia (IIUM)



PANEL 2

YM PROF. DATO DR HAJI ZULKIFLY BIN MUDA
Faculty of Shariah
Sultan Sharif Ali Islamic University



PANEL 3

MADAM ROZAINA MAHMUD
Corporate & Regulatory Affairs Manager
Wipro Unza (Malaysia) Sdn Bhd

**FORUM: HALAL AND FATWA PERSPECTIVE ON THE
LATEST DEVELOPMENTS IN SCIENCE AND TECHNOLOGY**

FOR MORE INFO



REGISTRATION LINK



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Programme Schedule

INTERNATIONAL CONFERENCE OF CONTEMPORARY HALAL AND FATWA (ICCoHaF) 2024
RAJAH BROOKE BALLROOM, NILAI SPRINGS RESORT HOTEL
18 SEPTEMBER 2024 (WEDNESDAY) | 7.30 AM – 6.00 PM

Day 1 Full Day Programme

Time	Event
7.30 AM	Participant Registration and Breakfast
8.45 AM	Keynote Speech I: Professor Dr. Azman Ab Rahman, Director IFFAH, USIM Title: <i>Keperluan Fatwa Halal Sedunia Ke Arah Pemerkasaan Industri Halal Global</i>
9.30 AM	Forum: Halal And Fatwa Perspective on The Latest Developments in Science and Technology Panel 1: Prof. Dr.Irwandi Jaswir, INHART, International Islamic University Malaysia Panel 2: YM Prof Dato Dr Haji Zulkifly bin Muda, Fakulti Syariah, Universiti Islam Sultan Sharif Ali (UNISSA) Panel 3: Madam Rozaina Mahmud, Corporate & Regulatory Affairs Manager, Wipro Unza (Malaysia) Sdn Bhd Moderator: Dr. Muhammad Nizam Awang @ Ali, Institute of Fatwa and Halal (IFFAH), Universiti Sains Islam Malaysia (USIM)
10.45 AM	Morning Tea Break
11.00 AM	Keynote Speech II: Associate Professor Dr Winai Dahlan, Founding Director of Halal Science Centre, Chulalongkorn University, Thailand Title: Halal in Thailand: Challenge and Opportunity
11.30 AM	Keynote Speech II: Professor Dato' Ts. Dr. Sharifudin Md. Shaarani, Vice Chancellor, USIM Title: Unveiling Opportunities: Addressing Challenges in Malaysia's Halal Industry
12.15 PM	Opening Ceremony
1.00 PM	Lunch Break
2.00 PM	Oral and Poster Presentation (Parallel Room)
4.00 PM	Evening Tea Break
6.00 PM	End Session 1



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INTERNATIONAL CONFERENCE OF CONTEMPORARY HALAL AND FATWA (ICCoHaF) 2024
RAJAH BROOKE BALLROOM, NILAI SPRINGS RESORT HOTEL
18 SEPTEMBER 2024 (WEDNESDAY) | 12.00 PM – 1.00 PM

Day 1 Opening Ceremony

12.00 PM	Arrival of Guests and Participants
12.15 PM	Welcoming Remarks by the MC
	National Anthem
	Negeri Sembilan Anthem
	USIM Terus Maju
	Du'a' Recitation
12.25 PM	Welcoming Speech by Professor Dato' Dr. Muhammad Tauffik Mohd Noor , Deputy Vice-Chancellor
12.35 PM	Opening Speech by Professor Dato' Ts. Dr Sharifudin Md. Shaarani , Vice Chancellor, Universiti Sains Islam Malaysia (USIM)
	Gimmick, Launching of ICCoHaF 2024
	Token of Appreciation to Deputy Director General Operation JAKIM
	Presentation of Certificates of Appreciation to Co-Organizers, Sponsors and Strategic Partners
	Photo Session
1.00 PM	Lunch Break



INTERNATIONAL CONFERENCE OF HALAL AND FATWA (ICCoHaF 2024)
PARALLEL ORAL PRESENTATION PHYSICAL AND ONLINE SESSION
18 SEPTEMBER 2024 (WEDNESDAY) | 2.00 – 6.00 PM

Guide to Session Chairs

Room 1

Moderator: Dr. Norshazila Shahidan & Dr. Siti Syahirah Saffinee

Sub-Themes	Paper Title	Presenter	Time
Halal Science and Gastronomy	Analysis From A Halal Perspective On Animal Feeds For Shariah Compliant Aquaculture	Ms. Nurul Jarirah Johari	2.00 pm-2.15 pm
	Effect Of Ultrasonic Treatment on The Physical Quality of Water Spinach (<i>Ipomoea Aquatica Forssk.</i>)	Ms. Nadia Nur Ayunni Amir Hamzah	2.15 pm-2.30 pm
	Lipid Traceability and Quality of Bread Made With Lard From Different Pig Breeds	Mrs. Ainil Hawa Mohamad Fauzi	2.30 pm-2.45 pm
	Innovative Halal Gastronomy: Exploring Lychee Seed Flour As A Sustainable, Gluten-Free Bread Alternative	Dr. Syamila binti Mansor	2.45 pm-3.00 pm
	Halal Critical Ingredients in Cosmetics And Pharmaceuticals	Dr. Suraiya Abdul Rahman	3.00 pm-3.15 pm
	Investigating The Encapsulation of Edible Bird's Nest To Resist Heat Treatment: Assessing Nutritional Stability And Ensuring Halal Compliance	Mr. Mohd Zuhaifah Mohamed Jamil	3.15 pm-3.30 pm
Tourism and Hospitality	Halal Tourism in Lombok: Determining Factors for Local Communitys Involvement	Dr. Arni Abdul Gani	3.30 pm-3.45 pm
	Cultural Sensitivity in Halal Tourism: Navigating Challenges and Opportunities	Mrs. Nurul Widad Fitri Muhammad	3.45 pm-4.00 pm
	Halal Gastronomy Is the Basis of Good Health and Quality Tourist Offers	Prof. Dr. Midhat Jasic	4.00 pm-4.15 pm
Tea / Coffee Break & Poster Presentation			4.15 pm-4.30 pm
Tourism and Hospitality	Malaysia Truly Asia: International Muslim Tourists Revisit Intention to Malaysia	Ms. Fitriya Abdul Rahim	4.30 pm-4.45 pm
	Shariah Issues and the Role of Global Fatwa in Modern Muslim Friendly Tourism	Dr. Siti Syahirah Saffinee	4.45 pm-5.00 pm
	Do Brand Awareness, Attitudes, And Social Norms Influence Intentions To Visit Halal Tourist Destinations? A Comparison of Muslim and Non-Muslim Tourists	Dr. Ira Setyaningsih	5.00 pm-5.15 pm
	Enhancing Gastronomy Tourism Strategy Through Free Halal Certification Program in East Java	Mrs. Nurlaili Adkhi Rizfa Faiza	5.15 pm-5.30 pm
Halal Economy	SWOT-Pest Analysis of Halal Industry in Brunei	Mrs. Nor Surilawana Sulaiman	5.30 pm-5.45 pm
	Continuous Halal Leadership Excellence in Fulfilment of Maqasid Shariah	Ms. Roziatul Akmam Osman	5.45 pm-6.00 pm

INTERNATIONAL CONFERENCE OF HALAL AND FATWA (ICCoHaF 2024)
PARALLEL ORAL PRESENTATION PHYSICAL AND ONLINE SESSION
18 SEPTEMBER 2024 (WEDNESDAY) | 2.00 – 6.00 PM

Room 2

Moderator: Dr. Umi Hamidaton Mohd Soffian Lee & Dr. Norailis Ab Wahab

Sub-Themes	Paper Title	Presenter	Time
Halal Lifestyle	Perception and Acceptance of Cultured Meat: A Case Study of Universiti Islam Sultan Sharif Ali	Ms. Raihana Mohd Raffi	2.00 pm-2.15 pm
	Assessing the Validity of the Halal Consumption Congruence (HaCC) Model towards Consumers Purchase Intention of Malaysias Halal Food Products	Dr. Mahiah Said	2.15 pm-2.30 pm
	Halalan Thayyiban Natural Antidiabetic for A Healthy Life	Mr. Hasan Basri Haji Hanipah	2.30 pm-2.45 pm
	Detection of Porcine DNA In Sugar And Ethanol Level In Conventional Food Products For Halal Authentication: A Preliminary Study	Dr. Aklimah Haji Mustapa	2.45 pm-3.00 pm
	Analysis Of Fiqh Siyasa Shariyyah, Fiqh Al-Waqi and Fiqh Al-Jihad of The Boycott Movement On Israeli Products	Dr. Siti Fatimah Kassim	3.00 pm-3.15 pm
	The Spirit of Halal in A Sustainable Muslim Lifestyle	Dr. Tharwat Albataineh	3.15 pm-3.30 pm
Legal Perspectives and Jurisdictions	A Sadd Adz-Dzariat Review on The Customary Practice of Lako Bride at The Sasak Muslim Tribe	Mrs. Andini Rachmawati	3.30 pm-3.45 pm
Halal Education, Talent and Capacity Building	Halal in The Modern World: Talent And Capacity Building	Dr. Norailis Ab Wahab	3.45 pm-4.00 pm
Islamic Ethics and Sustainability	Exploring the Ethics and Feasibility of In Ovo Gender Testing for Egg Production within the context of Islam	Mrs. Gemma Ali	4.00 pm-4.15 pm
Tea / Coffee Break & Poster Presentation			4.15 pm – 4.30 pm
IR 4.0, AI and Digital Transformation	Development of a Shariah-Compliant Model for E-Payment Systems	Dr. Fatihah Mohd	4.30 pm-4.45 pm
	I Pro Halal Audit Checklist for Halal Logistics Services: Compliance to Malaysia Standard of MS 2400:2019 Part 1 And Part 2	Dr. Teh Zaharah Yaacob	4.45 pm-5.00 pm
	Understanding The Role IR.4.0 And Consumer Insights in Sustaining Halal Industry	Dr. Umi Hamidaton Mohd Soffian Lee	5.00 pm-5.15 pm
	Digital Transformation in The Halal Service Industry: Opportunities And Challenges For SMEs	Mrs. Farahiza Zaihan Azizan	5.15 pm-5.30 pm
	The Permissibility of Selling Video Game Accounts: A Juristic Analytical Study	Dr. Mustafa bin Mat Jubri @ Shamsuddin	5.30 pm-5.45 pm

INTERNATIONAL CONFERENCE OF HALAL AND FATWA (ICCoHaF 2024)
PARALLEL ORAL PRESENTATION PHYSICAL AND ONLINE SESSION
18 SEPTEMBER 2024 (WEDNESDAY) | 2.00 – 6.00 PM

Room 3

Moderator: Assoc. Prof. Dr. Norhayati Rafida Abdul Rahim & Dr. Zaliqa Adam

Sub-Themes	Paper Title	Presenter	Time
Consumer Education and Awareness	Knowledge And Awareness of Working Women in Purchasing Brunei Halal Frozen Food Brand for Family Meal Preparation	Mrs. Nabilah Johari	2.00 pm-2.15 pm
	Determining The Limit of Detection for Porcine DNA By Real-Time PCR (Taqman Probe) Technique Using Raw Pork Meat and Pork Fat DNA	Ms. Duaa Mughal	2.15 pm-2.30 pm
	Decoding Halal: Addressing Ambiguities in Food Labelling	Ms. Nabiatul Huda Binti Mohd Soleh	2.30 pm-2.45 pm
	The Perception and Acceptance of Bruneians on Vegan Meat	Assoc. Prof. Dr. Moohamad Ropaning Sulong	2.45 pm-3.00 pm
Halal and Fatwa Governance	Penggunaan Nanopartikel Emas Dalam Produk Kosmetik: Tinjauan Awal Daripada Perspektif Maqasid Syariah	Ms. Nurul Ainna	3.00 pm-3.15 pm
	Peranan Dan Pengurusan Halal Di Jabatan Agama Islam Negeri Johor Dalam Memartabatkan Industri Halal Di Malaysia / The Role And Management Of Halal In Johor For Upholding The Malaysia Halal Industry	Dr. Wan Ainaa Mardhiah Wan Zahari	3.15 pm-3.30 pm
	Pengurusan Pengiklanan Berkonsepan Halalan Toyyiban Dalam Industri Halal	Assoc. Prof. Dr. Setiyawan Gunardi	3.30 pm-3.45 pm
	Preliminary Analysis of Shariah and Legal Parameters for Medical Adhesives According To Halal Forensic Concept	Mrs. Al Uyuna Mohd Amin	3.45 pm-4.00 pm
	Comparative Analysis Fatwas of Majelis Ulama Indonesia: Study of The Reproduction of The Use of Qaw'id Al Fiqh Related To Halal Product Issues And Sharia Economics	Mr. Syaugi Mubarak	4.00 pm-4.15 pm
Tea / Coffee Break & Poster Presentation			4.15 pm – 4.30 pm
Halal Education, Talent and Capacity Building	Halal Tourism Sites in Malaysia: A Descriptive Analytical Study	Dr. Zaliqa Adam	4.30 pm-4.45 pm
	Halal Education Landscape: Assessing Supply and Demand of Skills and Knowledge For Halal Profession In Malaysia (Online)	Ms. Nur Fatin Aini Fekri Abidin	4.45 pm-5.00 pm
	Integrating Halal Authentication into Biotechnology Education: Opportunities And Challenges In Malaysian Universities (Online)	Dr. Marina Abu Bakar	5.00 pm-5.15 pm
	Sustaining Halal Talents in Malaysia: A Confirmatory Factor Analysis Approach	Assoc. Prof. Dr. Norhayati Rafida Abdul Rahim	5.15 pm-5.30 pm
Halal Certification and Standards	Improving Halal Compliance in Malaysia: Antecedents of Organizational Change Readiness in Small and Micro-Firms	Mrs. Asiah Alkharib Shah	5.30 pm-5.45 pm
	Organisations That Provide Halal Certification in Turkey And Some Suggestions For Setting Standards	Mr. Selman Zahid Ozdemir	5.45 pm-6.00 pm

INTERNATIONAL CONFERENCE OF HALAL AND FATWA (ICCoHaF 2024)
PARALLEL ORAL PRESENTATION PHYSICAL AND ONLINE SESSION
18 SEPTEMBER 2024 (WEDNESDAY) | 2.00 – 6.00 PM

Room 4

Moderator: Dr. Zizi Azlinda Mohd Yusof & Dr. Tg Ainul Farha Tg Abdul Rahman

Sub-Themes	Paper Title	Presenter	Time
Medical and Health Tourism	Needs Of Arabic Interpreters In Promoting Malaysia As A Medical Tourism For Muslim Travelers	Dr. Tg Ainul Farha Tg Abdul Rahman	2.00 pm- 2.15 pm
Halal Lifestyle Legal	Do Malaysia Ready To Implement Mandatory Halal Certification Scheme?	Mr. Ibrahim Abu Bakar	2.15 pm- 2.30 pm
	Recombinase Amplification Method Applied To Meat And Halal Authentication: Trends And Potential Implications	Ms. Siti Nurul Bazilah Haji Mohaimin	2.30 pm- 2.45 pm
	Attitude Of Young Muslim Consumers to Halal Certified Food Outlets In Trinidad And Tobago	Mr. Sheraz Ali	2.45 pm- 3.00 pm
	Halal Supply Chain Strategy in The Leather Industry Using The Quadruple Helix Model	Prof. Dr. Fitra Lestari	3.00 pm- 3.15 pm
	Considerations For The Halal Certification Of Cultivated Meat: A Singapore Perspective	Ms. Nurul Hidayah Abubakar	3.15 pm- 3.30 pm
	Assessing Halal Certification of Insects	Ms. Nur Sharalyn Abdullah	3.30 pm- 3.45 pm
	Navigating Halal Certification Standards: A Comparative Analysis of The Food Industry In Indonesia And Malaysia	Dr. Hulwati	3.45 pm- 4.00 pm
	The Impact of Halal Assurance System Implementation on Operational Performance in The Leather Industry	Mrs. Tengku Nurainun	3.45 pm- 4.00 pm
Tea / Coffee Break & Poster Presentation			4.15 pm – 4.30 pm
Communication, Branding and Reputation	Halal Terrorism: From The Portrayal of Media	Dr. Safiyyah Ahmad Sabri	4.30 pm- 4.45 pm
Fundamental Principles of Fatwa	<i>Manhaj Al-Iftaa Bayna Nahdhah Al-Ulamaa Wa Muhammadiyah Bi Indunisia: Dirasah Fiqhiyyah Muqaranah Li Fatawa Al-Hallu Wa Al-Hurmah</i>	Mr. Akhmadul Faruq Abdul Hamid	4.45 pm- 5.00 pm
	Ibn Hazm's Istihalah: A Jurisprudential and Chemical Study Of Substance Transformation	Mr. Fahmi Hasan Nugroho	5.00 pm- 5.15 pm
	The Comparison of Principle of the Transformation (<i>Istihalah</i>) and Decomposition (<i>Istihlak</i>) on Preventive Medicines between Vaccine and Enoxaparin Sodium from Majlis Kebangsaan Islam (MKI) Resolutions in Malaysia	Dr. Zizi Azlinda Mohd Yusof	5.15 pm- 5.30 pm
Consumer Education and Awareness	Perception Of Muslim Consumers in Malaysia Regarding Confidence And Challenges In Identifying Pig-Skin-Free Leather Products	Dr. Muhamad Firdaus Ab Rahman	5.30 pm- 5.45 pm



INTERNATIONAL CONFERENCE OF CONTEMPORARY HALAL AND FATWA (ICCoHaF) 2024
RAJAH BROOKE BALLROOM, NILAI SPRINGS RESORT HOTEL
19 SEPTEMBER 2024 (THURSDAY) | 8.00 AM – 6.00 PM

Day 2 Full Day Programme

Time	Event
8.00 AM	Breakfast
8.45 AM	Invited Speaker I: Dr Abdelhak El Kouani, Scharia Bord Director of Halal Control, Germany. Title: Bridging Tradition and Modernity: Navigating Fatwa and Halal Issues in Europe
9.15 AM	Invited Speaker II: Prof Dr. Diana Nur Afifah, S.T.P., M. Si, University Diponegoro, Indonesia Title: The Role of Biotechnology in Halal Food Production: Innovations and Challenges in Meeting Religious and Scientific Standards
9.45 AM	Oral Presentation I: Pengiran Dr Hajah Norkhairiah Pengiran Haji Hashim, Director of Halalan Thayyiban Research Centre, Universiti Islam Sultan Sharif Ali (UNISSA) Title: Halalan-Toyyiban Critical Control Point in Agriculture: A Literature Research on Poultry and Aquaculture Sector
10.15 AM	Morning Tea Break
10.30 AM	Oral Presentation II: Assoc. Prof. Dr Mohd Mahyeddin Mohd Salleh, Institute of Fatwa and Halal (IFFAH) Title: Halal Fatwa Disputes Among ASEAN Countries: Issues and Solutions
11.00 AM	Oral Presentation III: Assoc. Prof. Dr. Husna Zainal Abidin, Faculty of Tourism, Wakayama University, Japan Title: Exploring Muslim-Friendly Tourism Development for Regional Japan: A Visitor Perspective
11.30 AM	Announcement of Best Award Presentation, Innovation and Resolution
11.45 AM	Closing Ceremony Adress by the Program Director, Associate Professor Dr. Nazariyah Yahaya Closing speech by Deputy Vice-Chancellor Professor Dato' Dr. Muhammad Tauffik Mohd Noor Token of appreciation to the Deputy Vice-Chancellor
12.30 PM	Lunch Break
2.00 PM	Halal Industry Tour
5.00 PM	End of the Session

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Invited Speaker Dr. Abdelhak El Kouani

BRIDGING TRADITION AND MODERNITY: NAVIGATING FATWA AND HALAL ISSUES IN EUROPE

Dr. Abdelhak El Kouani

Halal Control, Germany

Abstract: This topic is of great importance as it relates to fatwa on halal issues for Muslims in Europe. This reality is characterised by complexity and complexity because European countries have chosen, through a historical process, to separate religion from the state and the conduct of life, which has made Muslims living in European countries face a number of emerging issues that require a legal opinion. There have been various approaches and perspectives in addressing the emerging issues that concern Muslims in Europe. On the one hand, there is an approach that favours rigidity and imitation, considering the reality in fatwa, and is content with quoting the old jurisprudence, while on the other hand, there is an approach that rejects the old jurisprudence and fundamentals and calls for the need to create new jurisprudence and new fundamentals to study the issues of this reality. Between these two contradictory approaches, our research comes to study ways to reconcile the jurisprudential heritage and the consideration of reality in the fatwa in Muslim issues in Europe in general and halal issues in particular, indicating the candidate principles and rules to create compatibility and prevent conflict, and answering the issues that concern Muslims in Europe and the West.

Keywords: *not provided*



Invited Speaker Prof. Dr. Diana Nur Afifah

THE ROLE OF BIOTECHNOLOGY IN HALAL FOOD PRODUCTION: INNOVATIONS AND CHALLENGES IN MEETING RELIGIOUS AND SCIENTIFIC STANDARDS

Prof. Dr. Diana Nur Afifah^{1,2,3}

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Abstract: Biotechnology is a field of product development and technology that involves living organisms, cells, and biological systems. Current conditions have seen many scientific fields utilizing biotechnology research. Biotechnology is important role in halal food production by ensuring that food products meet scientific and religious standards. The use of biotechnology in processing food products includes being able to produce enzymes to improve texture, taste, and shelf life; development of GMOs that maintain halal principles and increase nutritional content; as well as microbial fermentation in yogurt, cheese, and vinegar products using halal certified microbial strains and fermentation substrates. Indonesia has a halal fatwa regarding fermented food products to ensure that these products comply with Islamic law as promulgated by the authorities, namely the Majelis Ulama Indonesia (MUI). The basic principle of the Halal Fatwa on Fermented Products in Indonesia is that the source of raw materials used in the fermentation process must be halal, namely first, it must not come from pork or its derivatives or unclean animals which are considered by Islamic law. Secondly, related to the production process used in fermentation, it is a method that does not cause the final product to become haram, this is associated with the use of microorganisms (such as bacteria, yeast, and fungi) and all fermentation media must be halal. The three fermented products must not contain alcohol at levels that make them unfit for consumption according to Islamic law. Fatwa on fermented food products in Indonesia such as cheese, fermented milk, fermented drinks, and fermented soybeans such as those applied to tempeh. Indonesia has released all product halal certification statuses through the official MUI or LPPOM MUI website, so that all people can verify the halal status of products based on the certification number that has been issued. Research conducted by Afifah et al 2020 explains that gembus tempeh is a functional food that has a strong effect on HS CRP with 2.5 grams and 5 grams of gembus tempeh having a strong impact on adiponectin. Another study by Afifah et al 2014 explained that 2 grams of *Bacillus pumilus* isolated from Indonesian fermented soybean meal, was able to release several proteases which had strong fibrinolytic activity. This proves that fermented food has many advantages and benefits while still paying attention to halalness so that it can be consumed by all Muslims. The development of halal food biotechnology innovation has grown rapidly in Indonesia, as has been done in research on gembus tempeh and innovations in vegetable protein and meat substitutes. However, there are challenges in the field of biotechnology, namely the need for careful consideration and collaboration by scientists, ulama, regulatory bodies, and industry stakeholders. Apart from this, there are challenges in meeting religious standards such as halal certification, transparency of raw materials, ethics and policies that apply in each country. These challenges can be resolved so that biotechnology plays an important role in the future of halal food prod
Muslims in the world.

Keywords: biot

Oral Presentation Pengiran Dr Hajah Norkhairiah Pengiran Haji Hashim

HALALAN-TOYYIBAN CRITICAL CONTROL POINT IN AGRICULTURE: A LITERATURE RESEARCH ON POULTRY AND AQUACULTURE SECTOR

Pengiran Dr Hajah Norkhairiah Pengiran Haji Hashim, Director of Halalan Thayyiban Research
Centre, Universiti Islam Sultan Sharif Ali (UNISSA)

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Abstract: The Critical Control Point (CCP) is the point where the failure of Standard Operation Procedure (SOP) could cause harm to customers and to the business. While the Halalan toyyiban CCP is the point where contaminants and/or precursors could harm the halal assurance system chain. Agriculture is the science or practice of farming, including cultivation of the soil for the growing of crops and the rearing of animals to provide food and other products. According to a report from the Business Research Company, the global agriculture market grew from USD 12,245.63 Billion in 2022 to USD 13,398.79 billion in 2023 with a compound annual growth rate (CAGR) of 9.4%. Agriculture sectors were neglected in HTCCP due to the assumption that when the sources are halal so ARE the products. However, that is not the case and halal does not always mean toyyib. Therefore, this project reviewed some reputable articles and journals on the CCP and HTCCP in the poultry sectors. From the thematic analysis conducted, the specific HTCCP and its monitoring system together with the corrective actions to HTCCP for poultry and aquaculture sectors could be used as items for interview questions for further investigation from informants namely farm managers and poultry experts in Brunei Darussalam.

Keywords: Halalan Toyyiban, Critical Control Point, Agriculture, Poultry



Oral Presentation Assoc. Prof. Dr. Husna Zainal Abidin

EXPLORING MUSLIM FRIENDLY TOURISM DEVELOPMENT FOR REGIONAL JAPAN: A VISITOR PERSPECTIVE

Assoc. Prof. Dr. Husna Zainal Abidin, Faculty of Tourism, Wakayama University, Japan

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Husna Zainal Abidin^{1,a*}

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Abstract: Tourism is one of Japan's core pillars for its growth strategy and regional revitalization. Japan's tourism sector has great potential in attracting more Muslim tourists. As revealed by the Global Muslim Travel Index Report, Japan is rated as one of the most desirable non-OIC countries for Muslims to visit. As such, the number of Muslims visiting Japan is expected to continue to increase further. However, recent trends reveal that visitors merely visit the common tourist hotspots which are currently experiencing overtourism (i.e., Tokyo, Osaka, and Kyoto). While more regional destinations would be keen on attracting Muslim visitors, less research has been conducted on these destinations. Therefore, this research aims to explore how regional destinations can become more Muslim friendly to attract Muslim visitors. This research focuses on the visitor's perspective to understand their motivations, challenges and opportunities in visiting less touristic, regional destinations in Japan and their recommendations. Interviews were conducted with Muslim tourists visiting Japan and a thematic analysis was conducted. This research is ongoing and therefore, preliminary findings will be presented. Preliminary findings reveal key themes surrounding the lack of knowledge, digital technologies and visiting friends and relatives (VFR) tourism. This research is timely and provides theoretical contributions on the topic of Muslim friendly tourism development, in addition to practical implications to regional destination management organisations.

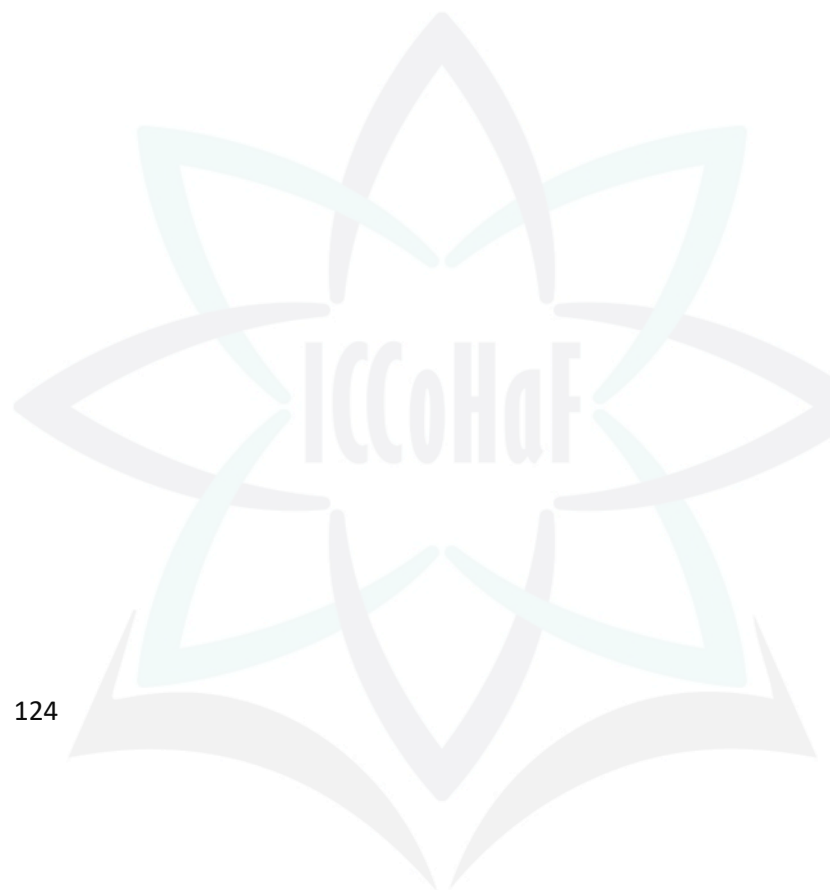
Keywords: Muslim Friendly Tourism; Japan; Regional Revitalisation



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Oral Presentations` Abstracts





ANALYSIS FROM A HALAL PERSPECTIVE ON ANIMAL FEEDS FOR SHARIAH COMPLIANT AQUACULTURE

Nurul Jarirah Johari^{1,a}, Ahmed Jalal Khan Chowdhury^{2,b}, Norkhairiah Hashim^c

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Abstract: Animal feed is regarded as the first Critical Control Point in the halal food supply chain, guaranteeing the halal purity of food products derived from animals. The halal and thayyiban status of the halal food items may be impacted by the doubts regarding the permissibility, safety, and quality of the animal feed. In an area that is overpopulated, the aquaculture sector in Southeast Asia seeks to establish itself as a significant supplier of animal protein for consumption. Based on above perspectives, this study was attempted to analyze the position of halal feed from the Islamic perspectives, and the importance of quarantine process for contaminated fish by non-halal feed to fulfill the Shariah requirement of halal. The existing study employs qualitative methodology and collects data through visits to nearby aquaculture farms and library research. Nevertheless, the preliminary investigation revealed that it is crucial to comprehend and address the issues encountered by the aquaculture industry to increase farm productivity, preserve the competitiveness of their goods, and enable exportation. Recently, there are issues caused by several variables, including the culture method, species, stocking density, site hydrography, husbandry practices, and types of fish feed during ASEAN aquaculture farming practices. Additionally, it was noted that numerous freshwater and mariculture farms in various ASEAN nations employed fish feed basic ingredients originating from imported non-halal sources. According to specific surveys conducted in the mostly Muslim populated countries in ASEAN region, the Muslim community have shown displeased with negligent farmers who use pig intestines and corpses as animal feed for farmed fish, raising questions about the fish's halal status. This is due to the lack of tangible solution and no specific guideline on Halal animal feeds. If animals are purposely fed impure food, they are referred to as Al-Jallalah, which is Haram. It is an essential need to investigate the existing shariah compliant policies regarding halalan thayyiban animal feed for aquaculture. Noteworthy, the findings of this preliminary study could be made as reference or guidelines to the authoritative bodies' production, importation, and policymakers in developing legal provision for the manufacture, sale, and use of halal feed, which shall be based on the Islamic principles outlined by the Shariah law. It is expected that the outcome of this research could be expedite for the 'Sustainable Halal Animal Feed' for the utilization of SDGs for 'Good Health and Wellbeing (SDG 3)', Responsible Consumption and Production (SDG 4) and 'Life Under Water' (SDG 14).

Keywords: Animal Feeds, Aquaculture Industry, Shariah Compliance, Sustainable, Halalan Thayyiban

EFFECT OF ULTRASONIC TREATMENT ON THE PHYSICAL QUALITY OF WATER SPINACH (*Ipomoea aquatica* Forsk.)

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Abstract: Among the concerns on the safety of consuming leafy vegetables which are usually eaten raw or minimally processed is presence of contaminants such as pesticide residues and microorganisms. Non-thermal decontamination method such as ultrasonic treatment is gaining traction as an effective postharvest treatment, hence suitable parameters for postharvest ultrasonic treatment on tender green leafy vegetables must be determined to preserve the physical quality. This research studied the effect of ultrasonic treatment (40kHz frequency and 350W power output) for 1, 7 and 15 minutes on the qualitative and quantitative changes in physical appearance of water spinach (*Ipomoea aquatica* Forsk.). The changes in physical appearance were measured by image comparison, the total colour change and comparison of leaf firmness pre-treatment and post-treatment. Prolonging ultrasonic treatment beyond 7 minutes damaged water spinach leaves, affecting the physical appearance. Leaves treated with ultrasonic waves for 7 and 15 minutes showed lower total colour change (ΔE) compared to control treatment. The firmness of water spinach leaves increases with increasing treatment duration with maximum increase obtained with 7 minutes' ultrasonic treatment. Ultrasonic treatment can be utilised as a decontamination method for water spinach and other leafy vegetables to remove contaminants up to 7 minutes' sonication time while preserving the quality of water spinach.

Keywords: ultrasonic treatment, physical quality, colour, firmness, water spinach

LIPID TRACEABILITY AND QUALITY OF BREAD MADE WITH LARD FROM DIFFERENT PIG BREEDS

Ainil Hawa Mohamad Fauzi^{1,a}, Hafiza Yahya^{1,2b}, Nazariyah Yahaya^{1,2c}, Mohd Sukri Hassan^{1,2d}, Dzulfadli Rosli^{2e}, and Hanis Nadia Yahya^{1,2f*}

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Abstract: Bread is an essential form of food commodity made up of basic ingredients. There is a need to authenticate the type of fat in bread as there are concerns about the addition of pig-derived ingredients. This is problematic for consumers with dietary restrictions. This study aims to study lipid traceability in bread and analyse the quality of bread made with lard from different pig breeds. Four different pig breeds chosen are Berkshire, Iberico, Olive White, and White. For comparison, butter, palm oil, olive oil, and sunflower oil were also used. Bread samples were made from the different fats using an automated breadmaker. To trace the lipid, gas-chromatography was used for fatty acid profiling. The quality of the bread was evaluated based on the proximate analysis, the texture profile analysis, and colour analysis. Results showed that the fatty acid profile of raw lard and bread lard were different. Raw lard had high oleic, stearic, and palmitic acid while bread lard had high myristic, palmitoleic, and oleic acid. The nutritional values of the bread are dependent on all ingredients used. Results showed no significant different in texture and the colour of the bread is influenced by the original colour of the raw lipid used. This study finds that lipid undergoes structural and concentration changes throughout the bread baking process that led to a lipid profile change. It also finds that lard in bread does not negatively affect the quality, but it does affect the halal status of the product.

Keywords: Fatty acid, bread quality, food authentication, halal, lard

INNOVATIVE HALAL GASTRONOMY: EXPLORING LYCHEE SEED FLOUR AS A SUSTAINABLE, GLUTEN-FREE BREAD ALTERNATIVE

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Abstract: The demand for gluten-free products is growing these days as a result of the fight against coeliac disease and gluten sensitivity. Numerous gluten-free loaves were available, made from tapioca, rice, and maize flours. Lychee (*Litchi sinensis*) seeds present a promising nutritional profile and array of benefits. However, its applications in the food industry have not yet reached their full potential. This study compares four distinct formulations for bread making in an effort to determine whether lychee seed flour (LSF) is a feasible substitute for gluten-free food products. The formulations call for different amounts of lychee seed flour substitution (5%, 10%, and 15%), which are LSF5, LSF10, and LSF15, respectively, and include gluten-free flour (GF) bread that have mixture of white rice flour, tapioca flour and starch as the control. The analysis covers both nutritional composition and physicochemical properties. The formulations designated LSF10 and LSF15 showed noticeably greater fat contents ($6.30 \pm 0.28a$ and $6.44 \pm 1.33a$, respectively) than the formulations designated control ($4.30 \pm 0.28b$) and LSF5 ($4.62 \pm 0.31ab$). The maximum fibre content was found in LSF15 ($0.59 \pm 0.07b$), whose concentration of lychee seed flour rose with increasing fibre content. As the amount of lychee seed flour substituted increased, the protein level showed an increasing trend. Out of all the formulations, LSF15 ($7.06 \pm 1.19a$) had the greatest protein content. For mineral content, it was range from 2.11% to 2.57% with the highest mineral content was LSF10 bread and the lowest mineral content is LSF5 bread. All LSF bread shows no significant difference with GF bread for mineral content. The physicochemical results of LSF bread and GF bread do not show much difference even with the substitution of lychee seed flour. These findings could have an impact on the food industry by expanding the range of gluten-free product options and serving individuals with coeliac disease or gluten sensitivity. The use of lychee seed flour, derived from a typically wasted portion of the fruit, aligns with the *thoyyiban* principle of sustainable and waste minimisation food production. Through repurposing natural byproducts into functional gluten-free substitutes, this research advances a more wholesome and ethically compliant food system that adheres to *Halalan Thoyyiban* principles.

Keywords: Lychee seeds flour, gluten free bread, nutritional, physicochemical, *Halalan Thoyyiban*



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STUDIES

HALAL CRITICAL INGREDIENTS IN COSMETICS AND PHARMACEUTICALS

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Abstract: Despite established Malaysian guidelines and standards on halal certification, there remains a limited availability of halal-certified cosmetics and pharmaceuticals. Halal critical ingredients are ingredients with frequent halal issues due to the potential sourcing from both halal and haram sources. Therefore, studies focusing on halal critical ingredients are essential to raise awareness among consumers, manufacturers and academicians thereby promoting halal certification and contributing to the growth of the halal industry. This study aimed to conduct document analysis on the definition, criteria and listing of halal critical ingredients in cosmetics and pharmaceuticals. The research design was qualitative document analysis through a search of documents via three sources, namely Scopus, Google and grey literature. After the quality appraisal, the documents selected were analyzed by thematic analysis and validated by data source triangulation. There were 55 documents included in this study. Emerging themes from the definition of halal critical ingredients were unknown or doubtful halal status and need for further evaluation. The two themes identified for criteria of halal critical ingredients were 1) ingredients at risk of non-halal sourcing and 2) unclear Islamic jurisprudence. A total of 75 halal critical ingredients in cosmetics and pharmaceuticals have been identified. Lipid-based ingredients represent the largest proportion of halal critical ingredients at 42.7%, followed by other ingredients at 29.3%, protein-based ingredients at 13.3%, hormones at 9.3%, and enzymes at 5.3%. The most identified halal critical ingredients include magnesium stearates, sorbitan esters, glycerol and stearic acid as they can be potentially from both plant and animal fats including porcine fats. In conclusion, the findings of this study have delved into different aspects of halal critical ingredients in cosmetics and pharmaceuticals. Understanding halal critical ingredients is essential for providing references to halal critical ingredients in cosmetics and pharmaceuticals, thereby driving the increase in demand for halal-certified products.

Keywords: Halal critical ingredients, Halal issue, Cosmetics, Pharmaceuticals

INVESTIGATING THE ENCAPSULATION OF EDIBLE BIRD'S NEST TO RESIST HEAT TREATMENT: ASSESSING NUTRITIONAL STABILITY AND ENSURING HALAL COMPLIANCE

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Abstract: Edible bird nests (EBN) are a traditionally healthy delicacy food in many Asian cultures, particularly within Chinese cuisine and medicine. They are esteemed for their rich nutritional content, including proteins and carbohydrates, and their purported health benefits, such as enhancing the immune system. EBNS are sensitive to environmental conditions and prone to degradation. Factors like temperature can significantly impact the quality and efficacy of EBN. Ensuring the stability of EBN during beverage processing is crucial to preserving its nutritional properties. Through encapsulation, polymers form a barrier around the EBN, shielding them from high temperatures and thus preserving those properties. The purpose of this study was to explore the effect of encapsulation on the EBN's physicochemical properties and stability under various temperature conditions. Extrusion encapsulation was performed, and morphological evaluation through Field Emission Scanning Electron Microscopy (FESEM) and protein analysis revealed that the EBN was successfully encased in the encapsulation matrix. Proximate analysis on treated encapsulated and native EBN at 80oC, 90oC, and 100oC revealed a significant influence ($p < 0.05$) across thermal treatment on the nutritional content, encapsulation provide nearly no impact in protein composition. Protein content was observed maintain with $1.98 \pm 0.54\%$, $2.19 \pm 0.05\%$, $2.02 \pm 0.27\%$ at 80oC, 90oC and 100oC respectively. Additional mineral content has been observed in encapsulated EBN because of the encapsulation matrix. The study concludes that encapsulation is a viable method to enhance the thermal stability of EBN, making it more resilient to temperature-induced nutrient degradation and acting as value added for EBN's nutrient composition. These results are valuable for the food industry, particularly in the development and processing of EBN-based products, where maintaining nutritional integrity is essential.

Keywords: Edible Bird' Nest (EBN), nutritional content, stability, encapsulation



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HALAL TOURISM IN LOMBOK: DETERMINING FACTORS FOR LOCAL COMMUNITY'S INVOLVEMENT

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Abstract: Lombok is an important destination for halal tourism in Indonesia, renowned for its abundant natural resources, rich cultural heritage, and strategic support from local government authorities. Key attributes contributing to its appeal include the warm hospitality of the Sasak-Lombok community, ease of access to prominent tourist sites, proximity to Bali Island, and the devout religiosity of the Sasak community. Despite these advantages, the advancement of halal tourism in Lombok faces significant challenges, primarily due to the limited involvement of the local community. Understanding the determinants of community participation in halal tourism is essential for fostering meaningful engagement and promoting sustainable development in this sector. This study aimed to identify the critical factors that influence local community involvement in halal tourism in Lombok. Utilizing a quantitative research approach, data were collected through questionnaires distributed to community members involved in tourism-related activities. The analyses were then conducted using descriptive statistics and multiple linear regression. The findings revealed that both operational factors—such as product and process orientation, participant responsibility, and situation-specific conditions—and personal factors, including family support, income, interest, confidence, and opportunities, play significant roles in shaping community participation. By comprehending these influencing factors, policymakers and stakeholders can devise more effective strategies to enhance community engagement, thereby ensuring the successful growth and sustainability of halal tourism in Lombok.

Keywords: Halal tourism, Operational factors, Personal factors, Local community involvement, Tourism Involvement, Islamic tourism



HALAL GASTRONOMY IS THE BASIS OF GOOD HEALTH AND QUALITY TOURIST OFFERS

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²Halal Food Certification Agency, Tuzla, Bosnia and Herzegovina

³HALAL CONTROL GmbH Certification agency in Rüsselsheim am Main, Germany

Abstract: Today, halal food production procedures are theoretically and practically standardized. However, due to the extensiveness and specificity, there are fewer standards and guides related to halal gastronomy. Halal gastronomy is the art of preparing and serving halal ready meals in accordance with Islamic regulations. It includes knowledge of the halal status of food components, halal culinary techniques, nutritional properties, aesthetics and sensory aspects of prepared meals. Human nature is very sensitive when it comes to consuming food. Thus, a large number of people have aversions to haram ingredients. This is why certification, especially "halal friendly" food in restaurants, is still suspicious for most consumers. This aspect of sensitivity to haram represents a special challenge for standard bearers as well as for certification bodies. The introduction of new technologies and innovations in cooking, such as molecular gastronomy, the use of new ingredients and innovative technical equipment, enables the creation of new culinary experiences, but also the challenge of defining their halal status. Halal meals can be part of any cuisine, including national, Mediterranean or international. The importance of Islamic regulations related to moderate consumption of food, which should be an integral part of the halal healthy gastronomic tourist offer, is particular importance. Moderate consumption of food as a basic principle in Islam is the recommendation on which halal nutrition, health preservation and prevention of numerous modern diseases are based. Halal gastronomy is a growing trend in catering and tourism, with an increasing number of consumers looking for quality and certified halal dishes. It represents an increasing challenge in establishing certification and guaranteeing consumers that they consume halal meals.

Keywords: gastronomy, halal, tourist offer



HYGIENE AND SANITATION MEASURES IN HALAL FOOD PRODUCTION

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Abstract: Hygiene and sanitation measures are part of the prerequisite program in the production of healthy and nutritionally valuable halal food. There are a number of activities and operations used in the production, transportation, storage, preparation and serving of food, which are related to hygiene and sanitation. The paper presents the means and methods used in hygiene and sanitation and indicates their potential haram, halal or mesbuh status. When producing halal food, maintaining high standards of hygiene and sanitation is essential to ensure that the food is not only religiously compliant, but also safe and healthy for consumption. Halal hygiene and sanitation practices cover various aspects of food handling, processing and storage and are consistent with the principles of Halal (lawful) and Tayyib (clean and wholesome). This complements the saying “halalantayyiban” which becomes the goal of Islamic dietary law. Hygiene refers to conditions and practices that help maintain health and prevent the spread of disease. It includes: home hygiene and daily hygiene, personal hygiene, sleep hygiene and food hygiene. Sanitation includes the management of feces, solid waste, wastewater and drainage systems. Many operations are used to maintain food safety throughout the food chain. The following are often used: disinfection, disinsection, deratization, fumigation, sterilization and others. Agents used for these purposes can have halal or haram status. The following are often used for disinfection: acids, alkalis, alcohols, detergents, phenols, halides, acids, salts of heavy metals, aldehydes, gaseous disinfectants and others. In addition to mechanical and biological methods, many chemical agents are used for the processes of disinsection, deratization and fumigation. Residues of dead animals created after the treatment of food have haram status. Hygiene and sanitation are fully compliant with halal requirements if permitted halal means are used and if there are no residues in the treated food from animals whose tissue is forbidden to consume (insects and pesticides).

Keywords: measures for hygiene and sanitation, halal status



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MALAYSIA TRULY ASIA: INTERNATIONAL MUSLIM TOURISTS' REVISIT INTENTION TO MALAYSIA

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Abstract: This study investigates the determinants influencing the revisit intention of international Muslim tourists to Malaysia. It examines the interrelationships between push motivation, pull motivation, overall tourist satisfaction, and revisit intention. Utilizing purposive sampling, data was collected from a sample of 391 respondents. The analysis reveals a significant association between overall tourist satisfaction and revisit intention. Furthermore, the study finds that overall tourist satisfaction mediates the relationship between pull motivation factors and revisit intention. These findings offer valuable insights for the development of Islamic tourism in Malaysia and serve as significant input for destination marketers and policymakers.

Keywords: Halal Tourism, Motivation, Satisfaction, Islamic Tourism, Malaysia



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SHARIAH ISSUES AND THE ROLE OF GLOBAL FATWA IN MODERN MUSLIM FRIENDLY TOURISM

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Abstract: Muslim friendly tourism has emerged as a significant sector within the global travel industry, catering to the needs and preferences of Muslim travelers while seeking Shariah-compliant services and experiences. This paper explores the landscape of modern Muslim friendly tourism, focusing on the Shariah issues that arise and the pivotal role played by global Fatwa in addressing these challenges. By examining the principles of Muslim friendly tourism, this study highlights the necessity of adhering to Islamic guidelines in various aspects, including accommodation, food, entertainment, and ethical practices. The research delves into the diverse interpretations and applications of Shariah law across different countries, emphasizing the importance of a unified yet adaptable approach to Fatwa issuance in the tourism sector. Through an analysis of case studies and Fatwa from leading Islamic scholars and institutions, the paper illustrates how these Islamic law shape the practices and policies of Muslim friendly tourism providers. By addressing the challenges and opportunities presented by Shariah compliance in modern Muslim friendly tourism, this paper aims to contribute to the broader discourse on Islamic tourism and its potential for growth. The findings underscore the critical role of global Fatwa in navigating the complexities of Shariah issues, ultimately fostering a more inclusive and culturally sensitive travel environment for Muslims worldwide.

Keywords: Muslim friendly tourism, Shariah Issues, Fatwa



DO BRAND AWARENESS, ATTITUDES, AND SOCIAL NORMS INFLUENCE INTENTIONS TO VISIT HALAL TOURIST DESTINATIONS? A COMPARISON OF MUSLIM AND NON-MUSLIM TOURISTS

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Abstract: This study looks at how Muslim and non-Muslim tourists' brand awareness, attitudes, and social norms affect their intention to visit Lombok as a Halal destination. The research was carried out using a questionnaire. The questionnaire was completed online by 123 people, 56 non-Muslims and 67 Muslims. The study's findings revealed that Halal brand awareness and social norms did not influence non-Muslim tourists' intention to visit Lombok. In contrast, brand awareness did not influence Muslim tourists' intention to visit Lombok. Attitude variables influenced respondents' willingness to visit. Interestingly, there was a significant difference in R-squared between the two groups of respondents. For non-Muslim tourists, the three variables influenced 58.1% of their decision to visit Lombok, but only 39.9% of Muslim tourists. This study contributes to the understanding of Halal tourism through the perspective of two customers: Muslim and non-Muslim tourists.

Keywords: Halal, Tourism, Lombok, Indonesia



ENHANCING GASTRONOMY TOURISM STRATEGY THROUGH FREE HALAL CERTIFICATION PROGRAM IN EAST JAVA

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Abstract: This research aims to explore the implementation of free halal certification for small and micro enterprises products. Halal certification is considered an important factor in attracting Muslim tourists, who constitute a large market segment. This research analyzes the impact of the free halal certification program (Sertifikasi Halal Gratis/ SEHATI) on culinary business actors, tourist perceptions, and the development of gastronomic tourism as a whole. Research methods include surveys, interviews, and quantitative and qualitative data analysis. The research results show that the people of East Java have a positive perception of halal certification and see it as an important factor in supporting a halal lifestyle. Halal certification has a positive impact on consumers, business actors and the development of gastronomic tourism in East Java. Even though there are several challenges, ongoing efforts need to be made to increase public knowledge about halal certification, facilitate access to halal certification for business actors, and increase the credibility of halal certification institutions. Thus, halal certification can play a more optimal role in improving the quality of halal products, protecting consumer rights, and encouraging the progress of gastronomic tourism in East Java. The results of this research are expected to provide policy recommendations for the development of halal gastronomic tourism in East Java.

Keywords: Halal, Certification, Gastronomy, Tourism, East Java



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SWOT-PEST ANALYSIS OF HALAL INDUSTRY IN BRUNEI

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Abstract: The demand for halal products has increased over the last few decades in tandem with the increasing demographics of Muslim populations around the world. The halal market is proliferating every year in not only Islamic countries but also non-Islamic countries. People consume halal products due to halal accreditation, which ensures that products are safe for consumption and have quality, taste, and health guarantees. This research attempts to investigate the halal industry development in Brunei Darussalam. This study applied multiple data collection methods, such as literature review, observations, and interviews of the halal industry players in Brunei Darussalam. The data gathered on external and internal factors were used for analysis using the Strengths, Weaknesses, Opportunities, and Threats (SWOT) Matrix and PEST analysis. The analysis findings will identify the halal industry's development, readiness, and capability to face challenges when entering the global market. The analysis will vary for different companies, but the strategic management analysis can highlight the companies' issues, which will help the management make worthwhile critical decisions. Indirectly, this will help diversify Brunei Darussalam's economy and improve the halal industry.

Keywords: Brunei; Halal Industry, PEST Analysis, SWOT Analysis



PERCEPTION AND ACCEPTANCE OF CULTURED MEAT IN BRUNEI DARUSSALAM:

A CASE STUDY OF UNIVERSITI ISLAM SULTAN SHARIF ALI

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Abstract: In the Muslim community, meat is regarded as one of the staple protein dietary consumptions. In world demographics, the Muslim population rises more in comparison with other religious group. There is a popular misunderstanding that the manufacturing of conventional meat is considered unethical, and harmful to the environment and consumers as well. Thus, an innovative approach called cultured meat is considered a potential alternative to conventional meat. Cultured meat is meat that can be obtained in vitro from an animal without slaughtering the animal which suggests that cultured meat is a more ethical, environmentally friendly, more sustainable meat option, and does not utilize much land to breed and feed animals. This study uses both qualitative and quantitative approaches with surveys and questionnaires. This study aims to assess how UNISSA students perceive and accept cultured meat by looking into the aspects of cultural, environmental, health, and ethical considerations, and their behavior toward cultured meat.

Keywords: Acceptance, Cultured Meat, Perception, UNISSA



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ASSESSING THE VALIDITY OF THE HALAL CONSUMPTION CONGRUENCE (HACC) MODEL TOWARDS CONSUMER'S PURCHASE INTENTION OF MALAYSIA'S HALAL FOOD PRODUCTS

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Abstract: Halal industry is one of the fastest growing industries in the world and Malaysia contributed about US\$113.2 billion. To protect Malaysia's reputation as the top halal food producers, monitoring the Muslim consumers' attitude and preference towards the Malaysia's halal products is imperative. This study provides some insights since there are limited study on Malaysian halal food product specifically. 402 respondents from of Middle Eastern origin participated by completing self-administered questionnaire. This study integrated Theory of Planned Behaviour and Congruity Theory. Country-of-origin and religiosity commitment are selected since both are common constructs for halal behavioural study. The results showed that consumer self-congruence, religiosity commitment and perceived behavioural control have significant relationship with purchase intention. The opposite outcomes are country-of-origin and subjective norms. Attitude has a mediating effect towards the relationships of country-of-origin, consumer self-congruence, and religiosity commitment with purchase intention. In the interim, customer trust shows a significant moderating role towards purchase intention. Measuring religiosity is rather tricky and difficult because to admit non-conformance to the Islamic rites and requirements especially the "wajib" (must do) rites are something to be ashamed of. Furthermore, the respondents were Muslims from only six Middle Eastern countries, the findings could not be generalized. Future research should delve into the non-Muslims and other constructs that could enhance the research model. Conclusively, this study produces a novel research approach through the development of Halal Consumption Congruence (HaCC) Model that provide vital guidelines for Malaysia's halal food producers in enticing the Muslim consumers' purchase behaviour.

Keywords: Halal Consumption Congruence; Purchase Intention; Religiosity Commitment; Customer Trust

HALALAN THAYYIBAN NATURAL ANTIDIABETIC FOR A HEALTHY LIFE

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Abstract: Type II diabetes is a one of the types of Diabetes Mellitus (DM) that are commonly occurring in diabetic patients worldwide. It is a condition that happens due to the inability of the body to regulate and use simple sugar (glucose) as fuel or source of energy to the body and would later lead to an increase in blood sugar level. This condition is commonly caused by the inability of the pancreas to produce enough insulin, a hormone which regulates the amount of glucose in the blood. Citrus hystrix or also known as Kaffir lime or more commonly known as “Limau Purut” in the Malay peninsula, is one of the most common citrus fruits in the Southeast Asian region that is known to have an antidiabetic potential. Consequently, this research aims to investigate the usage of Kaffir lime as a natural as well as Halalan Thayyiban antidiabetic alternatives for patients suffering from Type II Diabetes in lowering their blood sugar content. In Brunei Darussalam, most cases of DM are related to Type II Diabetes as the increase in Diabetes Retinopathy (DR), an eye condition that can cause vision loss and blindness in people who have diabetes, which mostly linked to Type II diabetes have increased from 18% to 22.9% in the past two decades. This can be caused by the unhealthy lifestyle and unbalanced diet of many of the local citizens which are already suffering from overweight and obesity. This study has been reviewing secondary data such as books, journals and articles of other researchers of the same or similar field of research or topic as a source of reference and data collection. The findings show that Kaffir lime can be a good source of antidiabetic alternatives for diabetic patients as it is naturally occurred and Halalan Thayyiban. The phytochemical contents of the Kaffir lime which includes alkaloids, phenols and tannins are proved to have an effective impact towards inhibiting the activity of alpha-amylase enzyme, an enzyme that catalyses the digestion of starch into simple sugars such as glucose. This could help diabetic patients to regulate their blood glucose levels accordingly with the correct amount of Kaffir lime extract intake.

Keywords: Halalan, Thayyiban, Natural, Antidiabetic, Alpha-Amylase



DETECTION OF PORCINE DNA IN SUGAR AND ETHANOL LEVEL IN CONVENTIONAL FOOD PRODUCTS FOR HALAL AUTHENTICATION: A PRELIMINARY STUDY

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Abstract: The halal food industry is on a significant trajectory and this trend is expected to continue escalating imminently. However, the issues on the halal and thayyib food supply chain involving procurement, manufacturing, distribution and logistics have not been completely solved and are causing concern among the Muslim community in Brunei Darussalam. One of the issues includes the sugar decolorising process by using bone char or natural charcoal, which is a ceramic filter consisting of bone ash as one main raw material. Hence, halal status issue arises on the usage of bone ash that is derived from animal bones, as a prohibited item according to the halal food standard of Brunei Darussalam (PBD24:2007). Furthermore, ethanol is another issue that is present not only in liquor but other conventional and fermented products such as beverages, vinegars and sauces. The prevalence of these products being imported from Muslim-minority countries is high and thus increasing the concern on its halal status. This study will perform polymerase chain reaction for the detection of porcine DNA in imported sugar, and headspace gas chromatography with flame ionisation for ethanol level analysis in imported bottled coffee, energy drink, rice vinegar, Worcester sauce and local tempoyak sauce. All food product analyses will be conducted in triplicates for three different production batches. The results of the study will be fundamental to determine the halalan thayyiban status of certain food products at the preliminary stage based on scientific facts before exploiting further analysis according to the syariah aspects. In conclusion, the study will ultimately preserve the interests of the Muslim community on halal and thayyib matters of daily food products.

Keywords: ethanol, halal, porcine DNA, sugar, thayyib

ANALYSIS OF FIQH SIYASAH SHAR'IIYAH, FIQH AL-WAQI' AND FIQH AL-JIHAD OF THE BOYCOTT MOVEMENT ON ISRAELI PRODUCTS

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Abstract: This study conducts a thorough review and determination concerning the boycott of Israeli products, a topic of utmost importance and relevance, based on the disciplines of fiqh siyasah shari'yyah, fiqh al-waqi' and jihad fi sabilillah. The boycott of Israeli products is an effort to steer clear of particular products from companies that financially, strategically, and morally support the Zionist Regime. Muslims are the ones driving this movement to defend the Palestinian people and denounce the Zionist Regime for killing Palestinians and stealing their land. The goal of the study is to ascertain whether boycotting Israel and pro-Israel products is permissible under all three fiqh perspectives as a means of jihad and defence of the state of Palestine. It also seeks to investigate how certain circumstances and factors affect the distinction between fard ain and fard kifayah. This is a result of people's misunderstandings regarding the Palestinian jihad, particularly regarding the boycott. As a result, clarification is crucial for the matter to be assessed scientifically. Using a descriptive analysis approach and library research as the primary resource, the study used a qualitative research methodology. Usul Fiqh was applied as the foundation for the discussion while referring to the arguments surrounding the body of existing fiqh to analyse the data using the content analysis approach. The study's findings demonstrated that generally speaking, the understanding of fiqh siyasah shari'yyah, fiqh al-waqi' and fiqh al-jihad has made it mandatory for every Muslims to boycott Israeli and pro-Israeli products if doing so is thought to bring harmful and challenging to the infidel Zionist Israel, and does not cause Muslims to suffer mafsadah. It does not become mandatory, nevertheless, if the boycott incites violence and negatively impacts Muslims. The pursuit of wisdom is a lifelong goal for Muslim community members.

Keywords: Boycott, Fiqh Al-Jihad, Fiqh al-Waqi', Fiqh Siyasah Shar'iiyah, Israel

THE SPIRIT OF HALAL IN A SUSTAINABLE MUSLIM LIFESTYLE

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Abstract: Halal life style is actually a stepping stone to an optimal and honest life choice and refers to the everyday lifestyle that includes different principles, values and living standards. A sustainable Muslim lifestyle is a priority, especially when numerous climate changes are occurring, and natural resources are increasingly depleted. Halal lifestyle implies especially sustainability in the way of life, care for future generations in terms of preserving resources that can be important for their life in the future. This should also be part of the global halal strategy and it would be necessary to apply it in practice. The goal of the work is to collect and systematize scientific information based on the "evidence base" about the lifestyle of Muslims and point out the need for lifestyle changes in order to achieve sustainability and preserve resources for future generations. Halal lifestyle is the usual way of life of an individual, group or society that practices the religion of Islam. It refers to the way of living, housing, the way of eating, the maintenance of hygiene, the ways of transport, the ways of annual vacation, but also the way of communicating with the environment. The role of Shariah is significant guidance in a sustainable halal lifestyle and is an Islamic legal framework derived from the Qur'an and Hadith. It plays a key role in shaping guidelines on halal nutrition and other lifestyle elements. It encompasses a wide range of principles and teachings that go beyond food and encompass all aspects of Muslim life. There are many fundamental Shariah principles that influence dietary guidelines, including: intention and awareness, moderation and balance, and health and well-being. The development of science and technology has directly produced a number of products for people's good lifestyle today. This development has positive and negative implications. On the positive side, it contributes to the growth of national productivity and provides consumers with a variety of items to choose a better lifestyle. Although it is a negative side, it raises doubts when many entrepreneurs do not take into account the ethics of halal but also clean eating (Halal tayyib), even other products that are used in our life (so that the question of halal and haram among Muslim consumers arises). The balance between Halal and food safety controls, as well control of environment, create added value in the food chain and strengthen the trust of Muslim consumers and people of different religious backgrounds. These principles also support the sustainable production of halal food. In this review, we focused on raising public awareness of the quality, sustainability and safety of halal food and other needs. In addition, customers should be educated about how "Sharia looks at people and the universe, everything is created to help and benefit people, and everything happens according to the will of Almighty Allah". And why do people care about Halal and why should they adopt it as a lifestyle? Unfortunately, we are a global-neoliberal consumer society where money is (most often) the most important measure of the value system. The life of our descendants can be made easier by applying a sustainable lifestyle, which would preserve resources for future generations. The Holy Quran and hadith indicate this need. It is a fact of life that circumstances, culture and living conditions often determine the way of life we choose.

Keywords: halal food, sustainable halal lifestyle



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HALAL IN THE MODERN WORLD: TALENT AND CAPACITY BUILDING

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Abstract: The intersection of ethical business practices with talent development and capacity building is a hot topic in the field of sustainable development. This study aims to explore how Halal practices integrate with contemporary organizational strategies, specifically in terms of nurturing talent and enhancing capacity within Halal industries. The search, conducted on June 26th, 2024, yielded 116 records from 105 sources, with a focus exclusively on journal articles published between 2015 and 2024 within the business and Halal sectors. The findings reveal significant patterns and trends, highlighting the most cited authors, influential journals, and active research areas in this interdisciplinary field. The bibliometric analysis suggests a need for deeper exploration into specific aspects such as the impact of Halal certification on organizational performance, the role of technology in enhancing Halal supply chains, and the intersection of Halal practice with emerging fields like digital transformation and sustainable development goals. The analysis contributes to a deeper understanding of the way Halal organizations can leverage talent management strategies to achieve long-term success and societal impact.

Keywords: Talent, Capacity, Building, Scopus, Bibliometrics

EXPLORING THE ETHICS AND FEASIBILITY OF IN OVO GENDER TESTING FOR EGG PRODUCTION WITHIN THE CONTEXT OF ISLAM

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Abstract: It is estimated around 7 billion male chicks are culled each year at just one day old as they are an unwanted by-product of the egg laying industry (Epp, 2022), the carcasses then used as feed for birds of prey in captivity, exotic pets, and owl rescue centres. However due to potential animal welfare considerations, since 2018 The practice of in Ovo gender testing of chicks has developed within Europe (Bartels et al, 2018), while holding promising implications for the poultry industry in terms of efficiency and resource allocation, is not devoid of ethical considerations, particularly within the framework of religious beliefs and cultural sensitivities. This paper delves into the multifaceted discourse surrounding the ethics of in Ovo egg testing, specifically within the context of religious mandates, with a focus on its application in the Halal industry. Eggs are Halal products for consumption without the need of Halal certification as they do not require the slaughter process (Halal Research Council, 2004), however an increased focus on animal welfare within the Halal supply chain has brought to light the use of this new technology and if there are religious boundaries within Islam. From a human perspective, gender selection for social or economic purposes constitutes unacceptable interference in the divine demographic order and hence is prohibited (Chamsi-Pasha and Albar, 2015). based upon the ayah in the Quran “He bestows female upon whom He wills and bestows male upon whom He wills’ (Qur’an; 42: 49). And so this has led to the research discussion of whether this gender selection is acceptable from an animal perspective. The ethical debate regarding in ovo gender testing revolves around several key concerns. One primary consideration is the potential for embryo manipulation and the moral implications of intervening in the natural developmental process of living organisms. Critics argue that such manipulation may infringe upon the sanctity of life and raise ethical questions about the treatment of animals. In the context of the Halal industry, additional ethical dimensions emerge. Halal dietary laws dictate strict guidelines for the consumption of food products, including meat and poultry, which must adhere to Islamic principles of animal welfare and slaughter. Consequently, any technological intervention in the production process must align with these religious tenets. The permissibility of in ovo gender testing hinges on whether it is deemed consistent with Islamic teachings on the humane treatment of animals and the preservation of their well-being. Proponents argue that early gender determination could lead to more ethical practices by eliminating the need for culling male chicks in egg-laying breeds, thereby reducing animal suffering. That said, concerns persist regarding the accuracy of the testing method and its potential effects on hatchability rates and chick health. This study, as a starting point of this research delves into the opinions of religious scholars regarding the permissibility of the technology and animal ethics in relation to religious teaching in Islam. To fully navigate these ethical complexities, it is essential to engage stakeholders from diverse backgrounds, including religious scholars, ethicists, scientists, and industry representatives, in constructive dialogue. Such interdisciplinary collaboration can facilitate the development of ethical guidelines and regulatory frameworks that uphold religious principles while promoting innovation and sustainability in the Halal poultry sector.

Keywords: *not provided*



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DEVELOPMENT OF A SHARIAH-COMPLIANT MODEL FOR E-PAYMENT SYSTEMS

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Abstract: The emergence of online transactions and e-payment systems presents fresh challenges for Islamic scholars and researchers seeking to apply Shariah principles to the realm of e-commerce. With Malaysia's increasing adoption of e-commerce and online shopping, it becomes imperative to confront these challenges with Shariah-aligned solutions. This paper advocates for a comprehensive model that integrates a Shariah core framework, robust technical mechanisms, establishment of a regulatory body, and enactment of legal provisions to facilitate Shariah-compliant e-commerce transactions.

Keywords: E-Payment, E-commerce Transaction, Shariah-Compliant



UNDERSTANDING THE ROLE IR.4.0 AND CONSUMER INSIGHTS IN SUSTAINING HALAL INDUSTRY

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Abstract: In recent years, the sustainability of the Halal industry, particularly in the context of Halal cosmetics, has been significantly influenced by the increasing complexity of technology. Given that the industry is still in its nascent stage, this research seeks to deepen the current understanding of how the incorporation of Industry 4.0 (IR4.0) technologies, including Augmented Reality (AR), Virtual Reality (VR), and Mixed Reality (MR), is shaping consumer perceptions and preferences, leading to a transformative shift in the industry. The primary objective of this research is to explore how the convergence of AR, VR, and MR offers a unique opportunity to reshape the industry's landscape in alignment with the preferences and values of modern consumers. A comprehensive review of academic journals, reports, websites, and newspapers will be conducted then, thematic analysis employed to identify key themes and patterns emerging from the review. This research aims to provide a thorough understanding of how IR4.0 technologies enhance consumer experiences, increase supply chain transparency, and drive strategic decision-making to support the sustainability of the Halal cosmetics industry.

Keywords: Halal industry, halal cosmetics; IR4.0, sustainability

THE PERMISSIBILITY OF SELLING VIDEO GAME ACCOUNTS: A JURISTIC ANALYTICAL STUDY

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Abstract: The rise of online gaming and the secondary market for buying and selling virtual game accounts has necessitated a juristic examination of its permissibility from an Islamic legal standpoint. This study aims to explore the Islamic legal considerations surrounding the practice of selling video game accounts through a comprehensive analysis grounded in Islamic jurisprudence (fiqh). Utilizing authoritative sources such as the Quran, Sunnah, and scholarly opinions, the research employs a thorough juristic framework to investigate the concepts of ownership, property rights, contractual obligations, transparency, and the potential elements of gambling (maisir) and excessive risk (gharar) concerning video game account transactions. Key findings indicate that while Islamic law recognizes property rights and permits lawful transactions, the sale of video game accounts may be subject to certain conditions and limitations based on juristic interpretations. Contractual agreements with game developers, transparency in disclosing account details, and abstaining from deceptive practices emerge as crucial factors. Furthermore, the study highlights the potential risks of transactions involving gambling-like elements, which are prohibited in Islamic law. The research contributes to the broader discourse on the application of Islamic legal principles to modern digital practices, offering juristic guidance to Muslim gamers, game developers, and the wider gaming community. It concludes that the permissibility of selling video game accounts must be evaluated on a case-by-case basis, adhering strictly to the principles and rulings derived from Islamic jurisprudence.

Keywords: Video Game Accounts; Islamic Jurisprudence; Virtual Property Rights; Gambling (Maisir), Risk (Gharar)



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KNOWLEDGE AND AWARENESS OF WORKING WOMEN IN PURCHASING BRUNEI HALAL FROZEN FOOD BRAND FOR FAMILY MEAL PREPARATION

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Abstract: In contemporary society, where more women are joining the workforce, understanding how halal awareness influences their decisions regarding food is crucial. This study aims to assess the knowledge of frozen food and Brunei Halal frozen products among working women in Brunei Darussalam, and to evaluate the frequency of using this local brand for meal preparation. Applying a quantitative approach, data were collected through a closed-ended questionnaire using convenience sampling, wherein survey questionnaires were randomly placed at the centre of Brunei Halal food stores. Findings revealed varying levels of knowledge and awareness among working women consumers regarding halal frozen food, along with insights into its frequency of use for meal preparation. The study emphasises the importance of understanding working women's attitudes towards halal frozen food and highlights the need for further research and initiatives to promote halal frozen food consumption among this demographic.

Keywords: Knowledge; Awareness; Working Women; Brunei Halal Frozen Food; Family Meal Preparation



DECODING HALAL: ADDRESSING AMBIGUITIES IN FOOD LABELLING

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Abstract: This study addresses the issues of ambiguous food labelling by analysing selected halal food labels using linguistic features. Ambiguous or misleading terms on halal food products present significant issues for consumers who follow specific dietary guidelines. This study employs discourse analysis to investigate the semiotic, phonological, morphological, and semantic aspects of eight food labels that use ambiguous halal terms. The goal is to understand how these linguistic features lead to confusion and misinterpretation among consumers. Findings reveal that certain terms and phrases, when not clearly defined or appropriately used, result in misconceptions about the halal status of food products. This issue is particularly pronounced when the labels fail to meet established regulations, such as using non-standard terms or providing incomplete ingredient disclosures. By highlighting these problems, the research aims to offer insights into improving halal food labelling practices, ensuring better regulatory compliance, and boosting consumer confidence. The results underline the necessity for clear, precise, and standardised halal labelling to avoid ambiguity and uphold the integrity of halal certification. Consequently, the study advocates for stricter enforcement of labelling regulations and increases awareness among food producers and consumers regarding the importance of accurate halal labelling.

Keywords: Halal food labelling, ambiguous terms, linguistic features, discourse analysis

THE PERCEPTION AND ACCEPTANCE OF BRUNEIANS ON VEGAN MEAT

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Abstract: Meat is one of the largest consumption due to its benefits to health such as protein, lipid, and vitamins. As much as drawbacks of meat consumption have occurred such as high blood pressure and colorectal cancer, the alternative to produce meat substitutes to reduce meat consumption has been made, such as vegan meat. In Brunei Darussalam, vegan meat is still new to be discovered, thus, it is different from the usual diet intake. Many aspects of vegan meat need to be uncovered such as types of meat vegan, the nutrients as well as the microbial risks in the vegan meat production. This study highlights on the level of awareness among Bruneian people on vegan meat, the benefits of consuming meat especially in health and identifying the level of acceptance of vegan as an alternative to vegetables and meat. Both qualitative and quantitative methods were used to gather data by conducting open-ended and close-ended questionnaires. Data of the study has been collected from 204 of the respondents from citizens in the four districts in Brunei Darussalam, using a survey questionnaire through Google Form. The data were analysed using the Statistical Package for Social Science (SPSS) version 29. Result of the study revealed that majority of respondents acknowledge vegan meat and alert to the new product inventions. Nonetheless, there are few respondents that are unaware of vegan meat. In additions, the respondents mostly agreed that vegan meat consists of several health benefits to control the risk of health issues. Besides, most of the respondents are neither agree nor disagree to the changes of traditional dietary practice; but most of them could consider in making choices especially in determining vegan meat as a meat alternative.

Keywords: Halalan, Thayyiban, Meat, Perception, Acceptance



PERANAN DAN PENGURUSAN HALAL DI JABATAN AGAMA ISLAM NEGERI JOHOR DALAM MEMARTABATKAN INDUSTRI HALAL DI MALAYSIA

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Abstrak: Halal merupakan perkara yang diuruskan oleh negeri yang diselaraskan di bawah Jabatan Agama Islam Negeri masing-masing. Halal di negeri Johor diletakkan di bawah kendalian Bahagian Pengurusan Halal (BPH), Jabatan Agama Islam Negeri Johor (JAINJ). Kajian ini bertujuan untuk mengupas pengurusan dan pelaksanaan halal di negeri Johor dengan melihat kepada peranan dan fungsi JAINJ serta isu dan halangan dalam pengurusan dan pelaksanaan urusan halal di negeri Johor. Seterusnya, cadangan terhadap penambahbaikan pengurusan halal di negeri Johor disertakan dalam usaha untuk memartabatkan industri halal di Malaysia.

Kata kunci: Halal, JAINJ, Pengurusan Halal

PENGURUSAN PENGIKLANAN BERKONSEPKAN *HALALAN TOYYIBAN* DALAM INDUSTRI HALAL

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Abstrak: Pengiklanan merupakan salah strategi dalam mengembangkan industry halal. Perkara ini perlu diterokai dan diinovasikan dari masa ke masa bagi menyahut cabaran persaingan ketat di antara pemain industry. Jenis dan fungsi iklan menjadi penting dalam memasarkan produk halal perlu dikaji sebagai pedoman trik pemasaran. Iklan dan industri halal mempunyai hubungkait antara satu sama lain dan memerlukan satu konsep yang piawai. Panduan syariah dan perundangan perlu dirujuk untuk menyokong keperluan garis panduan iklan dalam industry halal. Oleh itu, perlu kajian mendalam terhadap pengurusan pengiklanan ini bagi menggerakkan industry halal sejalan dengan serentak dalam satu payung yang berkonsepkan kepada *halalan toyyiban*. Keperluan akan strategi yang jitu dalam menggerakkan industry halal secara menyeluruh bagi memberi maklumat kepada masyarakat sebagai pengguna. Perkembangan industry halal terletak pada kaifiyat memainkan peranan periklanan halal yang komprehensif bagi menyahut cabaran persaingan produk barangan yang berada di pasaran. Kajian ini bertujuan untuk menjelaskan pengiklanan secara konvensional dan Islam. Juga menerangkan pengurusan pengiklanan bagi menggerakkan industri halal lebih terfokus di bawah payung syariah dan perundangan. Pengumpulan data dilakukan secara kualitatif melalui dokumentasi dengan menghimpun kajian kepustakaan dan artikel jurnal. Seterusnya pengumpulan data tersebut akan disimpulkan secara analisa deskriptif. Hasil kajian ini mendapati bahawa pengiklanan dalam industry halal mesti mengikut konsep syariah yang menjadi asas konsep *halalan toyyiban* dan perundangan. Juga implikasi kajian adalah mengelakkan pengiklanan yang mengandungi unsur penipuan dan manipulasi terhadap produk halal.

Katakunci: Pengiklanan, industri halal, produk halal, konsep halalan toyyiban, pengurusan



PRELIMINARY ANALYSIS OF SHARIAH AND LEGAL PARAMETERS FOR MEDICAL ADHESIVES ACCORDING TO HALAL FORENSIC CONCEPT

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Abstract: Medical adhesives are used extensively in medicine and healthcare, particularly for wound care, surgical operations, and medical device installation. For Muslim patients, the source of the material and the contents of medicinal adhesives may include impurities, preventing the patient from becoming pure. This concept paper was developed for identifying Shariah criteria and legal parameters for medical adhesives leveraging the Halal Forensics concepts. This is a documentary research in which primary and secondary reference sources are selected to collect accurate data on past studies and the substance of medical adhesives used in Malaysia. The data is analysed using an inductive content analysis approach, and the discussion will also consider how the usage of medical adhesives is defined under current law, including industry recommendations. The idea proposed comprises a framework for the interaction between the use of medical adhesives containing gelatine and its relationship with Islamic legal sources, laws, and halal standards based on Forensic Halal principles. This concept paper concludes with several solutions and suggestions for improving the use of medical adhesives, particularly in determining parameters based on Shariah standards, legal provisions, and research findings, all of which will have an impact on the community's use of halal medical adhesives.

Keywords: medical adhesive, gelatine, medical device, halal forensic



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COMPARATIVE ANALYSIS FATWAS OF MAJELIS ULAMA INDONESIA: STUDY OF THE REPRODUCTION OF THE USE OF QAWÂ'ID AL FIQH RELATED TO HALAL PRODUCT ISSUES AND SHARIA ECONOMICS

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Abstract: This study aim to see the reproduction of the use of qawâ'id al fiqh in the Fatwas of Majelis Ulama Indonesia by looking at the comparison of fatwas related to halal products and sharia economics. This study limits the fatwa issued since 2014 on the grounds that in that year the government issued a regulation on halal product guarantees. This study seeks to see the comparison of the substance and application of qawâ'id al fiqh in the MUI fatwa. The issue of comparative Fatwas of Majelis Ulama Indonesia was chosen for the following reasons: *first*: fatwas issued by the Majelis Ulama Indonesia both related to halal products and related to the sharia economy, both aim to ensure sharia compliance as a Muslim lifestyle. *Second*: fatwas issued by the Majelis Ulama Indonesia are decided by different institutional organs within the Majelis Ulama Indonesia, where fatwas related to halal products are decided by the MUI fatwa commission, while fatwas related to sharia economics are decided by the National Sharia Council, Majelis Ulama Indonesia. This study limits fatwas issued since the birth of the law on halal product assurance, and therefore data is collected through a literature review of Fatwas of Majelis Ulama Indonesia from 2014 to 2023. This research is only limited to looking at the use of qawâ'id al fiqh by the Majelis Ulama Indonesia both related to halal products and related to the sharia economy. Further research is needed on other instinbâth al hukm methods applied in the Fatwas of Majelis Ulama Indonesia.

Keywords: *not provided*



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**HALAL TOURISM SITES IN MALAYSIA: A DESCRIPTIVE ANALYTICAL STUDY
(MAWAQI` AL-SIYAHAH AL-HALAL FI MALEZIA: DIRASAH WASFIYAH TAHLILIYAH)**

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Abstract: This study aims to identify the available halal tourism sites in Malaysia. The objectives of the study are to identify the halal tourism sites in Malaysia, analyze their specifications and needs, and increase awareness of the characteristics of halal tourism among Malaysians. The study adopted the descriptive analytical approach; the researchers distributed questionnaire questions to 100 participants among tourists and the Malaysian community. The researchers reached several study results, including: There are many sites to obtain information about halal tourism in Malaysia, and these sites help to understand the meaning of halal tourism more clearly. In addition, knowledge of platforms related to halal products and the lack of understanding of some participants about halal tourism. The study concluded with recommendations and suggestions, including: Increasing studies related to halal tourism conducted in the Arabic language, including those related to halal tourism or tourism programs.

Keywords: Tourism, halal, tourism sites, awareness



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HALAL EDUCATION LANDSCAPE: ASSESSING SUPPLY AND DEMAND OF SKILLS AND KNOWLEDGE FOR HALAL PROFESSION IN MALAYSIA

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Abstract: The growth of halal industry in Malaysia has led to an increased need and high demand for the development of human capital, specifically for a workforce that possesses skills and knowledge relevant to halal practices. Presently, there are 34 Higher Educations Institutions (HEIs) providing academic programmes in halal studies, starting from diploma to doctoral level. However, there is a concern growing among industry leaders that graduates or halal talent produced from these programmes may not be obtaining the necessary skills and knowledge for entry into the labour market. As such, the purpose of this study is to examine the mismatch between skills and knowledge obtained at HEIs and; the skills and knowledge actually required by the halal profession to secure jobs in the halal industry. Besides, the objectives of this study are (i) to identify the skills and knowledge that are in demand for the halal profession in the halal industry, and (ii) to identify the supply of skills and knowledge of halal industry management graduates in Malaysia. This research was conducted using the exploratory method where the existing data was collected from job postings, programme standards for halal studies and the halal industry's occupational framework. The findings indicate that there is a mismatch in the supply and demand of skills and knowledge for the halal profession. In conclusion, this study offers important insight into improving the halal studies curriculum as well as contributing to the sustainable development of the halal profession that meets the halal industry's human capital needs in Malaysia.

Keywords: halal studies; halal profession; skills; knowledge; mismatch



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INTEGRATING HALAL AUTHENTICATION INTO BIOTECHNOLOGY EDUCATION: OPPORTUNITIES AND CHALLENGES IN MALYSIAN UNIVERSITIES

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Abstract: The integration of halal authentication into biotechnology education is becoming increasingly imperative in Malaysian universities to meet the growing demand for skilled professionals in the halal industry. This study investigates the current state of halal authentication education within biotechnology degree programs, focusing on the opportunities and challenges faced by Malaysian universities. Through a comprehensive literature review and qualitative analysis of curriculum documents, this study identifies gaps in existing educational offerings and explores strategies for enhancing halal authentication education. The findings reveal a need for specialized courses and practical training modules addressing halal authentication, along with interdisciplinary collaboration and industry partnerships to overcome resource constraints and faculty expertise gaps. Drawing on international best practices and case studies, a framework is proposed for developing halal authentication education initiatives within biotechnology programs, offering insights for academia, industry and policymakers. This study contributes to the advancement of halal education in Malaysia and provides a roadmap for universities seeking to integrate halal authentication into biotechnology degree programs.

Keywords: Halal authentication; Biotechnology; Halal education; Halal industry; Malaysian universities



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SUSTAINING HALAL TALENTS IN MALAYSIA: A CONFIRMATORY FACTOR ANALYSIS APPROACH

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Abstract: According to the 12th Malaysia Plan (RMK-12), a document issued by the Economic Planning Unit (EPU), the halal industry is expected to contribute 8.1 per cent of the Gross Domestic Product (GDP) and generate export revenue of RM 56 billion in 2025. Notably, the halal industry development needs to be strengthened to produce local halal industry players who are competitive in seizing greater global halal market opportunities. To achieve the targets set out in the 12th Malaysia Plan, all parties involved must play their respective roles, especially in the halal food industry. By 2030, the global Muslim population is expected to exceed 2.2 billion people. Muslims must strengthen the halal business to keep up with population expansion and global demand for halal products. The midst of the expansion of halal industries worldwide raises the question of the sustainability of halal talents. This article, therefore, wishes to identify the elements of needs and interests among halal executives in Malaysia. A quantitative approach is employed using the Confirmatory Factor Analysis (CFA), measuring needs and interests among 278 respondents who were randomly selected among Halal Executives in Malaysia. The CFA model reveals significant elements of the needs and interest framework for Halal talent's sustainability in Malaysia. It is suggested that the elements be further investigated using in-depth interviews to ensure that the industries fulfil their needs and interests for sustainability purposes.

Keywords: Halal, Talents, Needs, Interest, Sustainability, Confirmatory Factor Analysis



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IMPROVING HALAL COMPLIANCE IN MALAYSIA: ANTECEDENTS OF ORGANIZATIONAL CHANGE READINESS IN SMALL AND MICRO-FIRMS

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Abstract: Organizational change readiness is paramount for small and micro enterprises (SMEs) in Malaysia to comply with halal certification standards and remain competitive. Despite the recognized importance of halal certification for SMEs' growth and contribution to the global economy, limited research has explored the antecedents of organizational readiness for change (ORC) in halal standard compliance, particularly among smaller firms. This conceptual paper proposes a framework identifying four key antecedents that directly influence SMEs' ORC for halal compliance: change valence, task demands, assessment of resource availability, and situational organization evaluation. Understanding these antecedents is crucial, enabling SMEs to enhance their collective readiness for change implementation effectively is crucial. By fostering a positive change valence and conducting thorough informational assessments, SMEs can improve their capacity to adopt new tools, methods, and processes required for halal compliance. Consequently, they can better navigate organizational changes, improving halal compliance, efficiency, and productivity. This framework provides valuable insights for SMEs and policymakers to proactively address the factors influencing ORC, facilitating successful halal certification and enabling SMEs to thrive in the global halal market.

Keywords: Antecedents, Organizational Change Readiness, Halal, Small and Micro-Firms

ORGANISATIONS THAT PROVIDE HALAL CERTIFICATION IN TURKEY AND SOME SUGGESTIONS FOR SETTING STANDARDS

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ABSTRACT: Ḥalāl food is defined as food that is made according to the rules of Islamic law and is suitable for human consumption. Islamic scholars and organisations have put forward some principles of ḥalāl food based on the Holy Qur'an, the Sunnah of the Prophet, and analogy. Today, ḥalāl food has attracted great attention from Muslims as well as non-Muslims around the world. Muslims have put forward different controls and principles for ḥalāl food. Today, the concept of ḥalāl food is not limited to only; rather, new concepts have emerged, such as ḥalāl financing, ḥalāl cosmetics, and ḥalāl tourism. Turkey has been one of the countries that has given importance to ḥalāl food studies in recent years. Turkey has the identity of an Islamic country Since nearly 95 percent of the people living in Turkey are Muslims, and the interest in ḥalāl food studies is expanding every day, along with the spread of global exports or academic publications and meetings, and most importantly, the emergence of official organisations to the forefront with organisations issuing ḥalāl food certificates, in this context, the Ḥalāl Accreditation Agency (HAK) was established as the only institution authorised to provide ḥalāl accreditation services in Turkey to work in the field of ḥalāl accreditation inside and outside the country, to represent the country in ḥalāl accreditation studies on international platforms and to take the lead in the studies being conducted, and the people living in Turkey also show the importance they attach to this issue by relying on the state and organisations that obtain halal food certificates. This paper included the governmental organisations and other organisations that issue ḥalāl food certificates in Turkey, and discussed the criteria that these organisations take into account when issuing ḥalāl food certificates, and some suggestions were made regarding ḥalāl food. The research used inductive and analytical approaches to reveal the controls in ḥalāl food establishments in Turkey. It aims to promote the ḥalāl food experience in Turkey and benefit from it, as well as from the organisations that provide certificates on this subject internationally. The study concluded that halal certification organisations such as Gimdes develop their studies through chemical sciences and laboratories, and that we should not be satisfied with what jurisprudence provides, but rather benefit from other sciences, especially chemistry, biology and agriculture.

Keywords: Halal, Halal food, Türkiye, Halal Certification, Halal Accreditation Agency

Room 4

NEEDS OF ARABIC INTERPRETERS IN PROMOTING MALAYSIA AS A MEDICAL TOURISM FOR MUSLIM TRAVELERS

احتياجات المترجمين الفوريين العرب في ترويج ماليزيا كسياحة طبية بين المسافرين المسلمين

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Abstract: Medical tourism has become an important sector as the country's economy grows. Because of that, many Muslim travellers comes to Malaysia, especially Arabic-speaking visitors who seeking medical treatment in Malaysia and they often require interpreting services. However, Arabic interpreters for medical tourism are only available in a few private facilities in Malaysia, resulting in a demand for high-quality services that are often overlooked. Therefore, this research aims to identify the needs of Arabic interpreters in promoting medical tourism in Malaysia. The research used a qualitative study, using semi-structured online interviews to collect data. Five Arabic interpreters from private hospitals in the Klang Valley, were interviewed. The results revealed that five needs of interpreters in promoting medical tourism in Malaysia were identified, namely, hard skills and requirements, understanding daily routines, building good rapport with patients, interpersonal skills, and promotion to third parties. The study aims to improve the performance of medical interpreters in hospitals and enhance the vitality of Malaysian medical tourism. It is also suggested that specific training and language courses in medical translation or interpreter be developed before interpreter start working in this field.

Keywords: Medical Tourism; Muslim-friendly tourism; Arabic Interpreter

DO MALAYSIA READY TO IMPLEMENT MANDATORY HALAL CERTIFICATION SCHEME?

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ABSTRACT: Malaysia has implemented the Malaysia Halal Certification Scheme (SPHM) voluntarily since almost 50 years ago. This long experience should be exploited to boost the implementation of SPHM from a voluntary phase to a mandatory and comprehensive phase. This research was conducted to analyse the Malaysia's level of readiness to implement mandatory and comprehensive SPHM. The readiness for compulsory and comprehensive implementation of SPHM is measured based on the level of understanding and acceptance by consumers, the level of understanding and ability to comply it by the food industry and the ability to manage and enforce it by the government. The data from the field study was analysed using the computerized statistical program 'Statistical Package for Social Science' (SPSS) 21.0 'Windows' while the information obtained through thematic interviews was debated to obtain conclusions and recommendations for further action. The results of the research show that the level of readiness of users is satisfactory, which is at a high level. As for the food industry, their level of readiness is at a moderately high level. The government's level of readiness is very high. Overall, the level of readiness of the country is high even though there are differences in the level of readiness among the food industry according to race and religion. As a conclusion, the mandatory and comprehensive implementation of SPHM can be implemented in the future in Malaysia in stages according to the factors of race and religion.

Keywords: *not provided*



RECOMBINASE AMPLIFICATION METHOD APPLIED TO MEAT AND HALAL AUTHENTICATION: TRENDS AND POTENTIAL IMPLICATIONS

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Abstract: The rapid evolution of technology and the food industry has raised concerns about the accurate labeling of halal food and meat authentication. The Halal authentication system maintains a zero-tolerance policy regarding the halal status of products from farm to fork. As a result, innovative technologies such as recombinase polymerase amplification are necessary to address the growing issues of food fraud and enhance the current species identification method. Recombinase Amplification is an isothermal amplification process that operates at 37-42 degrees Celsius without the need for specialized equipment or technicians. This paper aims to explore recent research experiments on Recombinase Amplification technology for meat and halal authentication, hence provide a thorough review on application of recombinase amplification method in meat and Halal authentication. The review will summarize current trends and assess the potential future developments and implications for a reliable, rapid on-site auditing system.

Keywords: RPA, Halal, Meat Adulteration, Food Authentication, Recombinase-Aided

HALAL SUPPLY CHAIN STRATEGY IN THE LEATHER INDUSTRY USING THE QUADRUPLE HELIX MODEL

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Abstract: Indonesia has the largest Muslim population in the world which plays an important role in the consumption market for halal products. The Muslim population can create a very significant market for halal products and can contribute to the global and Indonesian economy. The leather product industry is an important sector in the Indonesian economy. Indonesia has the largest cattle population in the world and is one of the leading producers of cow leather products on the international market. Then, business actors in Indonesia process raw leather products into several products for local and global use which form a supply chain strategy. However, the leather product industry from cattle population in Indonesia also faces a number of challenges. To face this challenge, it is important to strengthen institutions in the supply chain for halal leather product products by making several strategic assumptions and implementing the Strategic Assumption Surfacing and Testing method. Data collection in this study was through interviews with experts on Quadruple Helix including academics, government, associations and industrial players. This research succeeded in identifying strategic assumptions related to strengthening institutions in the supply chain for halal leather product in Indonesia. There are 20 strategic assumptions divided into four parts. Thus, decision makers can consider various strategies to increase halal certification based on the level of importance and certainty. Apart from that, this research has also selected 11 main strategic assumptions which are the main focus of the research. Further research is recommended to validate selected assumptions with stakeholders for implementing the pilot project in Indonesia.

Keywords: Indonesia, Leather Product Industry, Supply Chain, Halal Product, Strategic Assumption Surfacing and Testing, Quadruple Helix



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CONSIDERATIONS FOR THE HALAL CERTIFICATION OF CULTIVATED MEAT: A SINGAPORE PERSPECTIVE

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Abstract: In December 2020, the Singapore Food Agency (SFA) was the first regulatory authority in the world to approve the sale of a cultivated meat product. Since then, there has been interest by cultivated meat producers to get halal certification for cultivated meat products for Muslim consumption. Following the announcement of Singapore Fatwa Committee's position on cultivated meat in February 2024, the Islamic Religious Council of Singapore (MUIS), the religious authority which regulates Singapore's halal certification is deliberating on the possible halal certification of cultivated meat products in Singapore. This paper examines the religious and technical aspects of MUIS's potential halal certification of lab-grown meat for Muslim consumption in Singapore, as well as the factors evaluated by Singaporean religious scholars in reaching their current stance. The paper will also highlight some of the future challenges and risk considerations.

Keywords: Halal, halal certification, cultivated meat, fatwa, MUIS

ASSESSING HALAL CERTIFICATION OF INSECTS

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Abstract: In 2022, the Food and Agriculture Organization of the United Nations (FAO) released a publication titled 'Thinking about the Future of Food Safety - A Foresight Report', which notably classified insects as new food sources. This classification was prompted by the growing interest in incorporating insect-based products into the wider consumer base, particularly in regions where insect consumption is generally unpopular. Consequently, this burgeoning interest raises the pivotal question of whether products derived from edible insects can obtain halal certification for Muslim consumption. In response to a fatwa by the Singapore Fatwa Committee on alternative proteins sourced from insects in the recent year, the Islamic Religious Council of Singapore (Muis), the religious authority responsible for regulating halal certification in Singapore, is considering the potential halal certification of food products derived from insects. This presentation aims to illuminate the rationale behind the aforementioned fatwa and delve into the certification requirements that must be fulfilled for the halal certification of insect-derived food.

Keywords: halal; halal certification; insects, fatwa, Muis



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NAVIGATING HALAL CERTIFICATION STANDARDS: A COMPARATIVE ANALYSIS OF THE FOOD INDUSTRY IN INDONESIA AND MALAYSIA

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Abstract: Halal certification has become increasingly important for Muslim consumers, who seek assurance that the products they consume comply with Islamic laws. The research aims to conduct a comparative analysis of the halal certification standards in the food industry between Indonesia and Malaysia. This study focuses on identifying both similarities and differences in the implementation and enforcement of halal certification standards in these two countries, emphasizing the regulatory frameworks and certification processes that businesses must navigate. The methodology in this research uses secondary data through literature and online digital study via the official website of the Malaysian Indonesian Halal Institute and other websites related to halal standards, which includes several important steps that ensure the validity and reliability of research results such as, identification of research topics and statements; literature search; secondary data collection; literature analysis; writing and reporting; validation and verification; conclusions and recommendations. By exploring the experiences of the food industry in Indonesia and Malaysia, this research contributes to a better understanding of the complexities surrounding halal certification and provides insights for businesses operating in these markets. The findings of this study will be valuable for both policymakers and industry stakeholders in developing strategies to enhance halal certification standards and facilitate trade between Indonesia and Malaysia.

Keywords: Halal Certification, Halal Standard, Food Industry



THE IMPACT OF HALAL ASSURANCE SYSTEM IMPLEMENTATION ON OPERATIONAL PERFORMANCE IN THE LEATHER INDUSTRY

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Abstract: This study is motivated by the current issue that the Indonesian government has mandated specific industries, both in the food and non-food sectors, to implement HAS. The leather industry is one such industry that must comply with this regulation. Regardless of the crucial reasons behind this regulation, the industry players need to understand the benefits of implementing Halal Assurance System (HAS) from a business point of view. Halal is often seen as a signal of good quality among consumers. However, labelling non-food products as Halal is still a subject of debate. This study aims to examine the effects of implementing the HAS on the Operational Performance (OP) of the leather industry in Indonesia. A conceptual framework of the relationships was developed using the seven criteria of HAS 23000, the Halal standard in Indonesia. Hypotheses were formulated to measure the impact of each criterion on the OP of the leather industry. A quantitative approach using a questionnaire was employed among SMEs located in one of the leather industry centres in Indonesia. SPSS and Smart-PLS 4 were used for data analysis. Results from the bootstrap output show that only Written Procedures (WP) significantly improve the OP of SMEs. This indicates that the implementation of HAS among SMEs in the leather industry in Indonesia is still lacking. Further analysis using IPMA is presented in this research to analyse the main practices that SMEs in the leather industry need to perform to effectively implement HAS in their organization.

Keywords: HAS, Leather Industry, Operational Performance



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HALAL TERRORISM: FROM THE PORTRAYAL OF MEDIA

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Abstract: As a predominantly Muslim country, Malaysia has established itself as a significant hub for halal products, adhering to stringent religious and ethical standards that dictate the production, processing, and handling of food and other consumables. Despite the rigorous standards and certifications that underpin the halal product industry, there are some significant gaps in consumer awareness and understanding, that largely influenced by media reporting. Thus, this paper aims to study the factors of misconception or misunderstanding that may emerged from media reports on halal product issues. The study applied a content analysis of the reports from mainstream newspapers such as *Utusan Malaysia*, *Berita Harian*, *The Star*, and *News Straits Times* from a ten-year publication period starting from 2014 to 2024. Findings show that the misconception or misunderstanding were influenced from factors of sensationalism, Islamophobia, and misinformation. These factors can be considered as terrorising the halal industry and the companies affected; or can be called as ‘halal terrorism’, as these media coverage of isolated non-compliance incidents could disproportionately damage the reputation of the entire halal industry and gaining loss to the affected companies. In conclusion, education and awareness on halal certification process and its economic social benefits is crucial to counteracting misinformation and fostering understanding among the public. Unfounded allegations can have economic repercussions for the halal industry, which is a significant part of Malaysia’s economy.

Keywords: halal terrorism, halal industry, sensationalism, Islamophobia, misinformation

منهج الإفتاء بين نهضة العلماء ومحمدية إندونيسيا: دراسة فقهية مقارنة لفتاوى الحل والحرمة

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ومما لاشك فيه أن خلو المجتمع من الفتاوى والمفتين يجعل الناس يسبغون وفق أهوائهم، ويتخبطون في دينهم خبط عشواء فيحلون الحرام ويحرمون الحلال. ولما كان للإفتاء والفتوى هذه المنزلة العظيمة زاد خطرهما إذ عليها يتوقف صلاح الدنيا والآخرة، ومعرفة الحلال من الحرام، ومما زاد من خطورتها كثرة الأحداث، وتعدد القضايا التي ليس لها نظير في حياة سلفنا يقاس عليه، أو لها نظير ولكن تغيرت علل الأحكام بسبب تغير الظروف مما يستلزم معه تغير الحكم. فجمعية نهضة العلماء وجمعية محمدية اللتان هما أكبرهما جمعياً وأثراً وأكثرهما تابعاً بإندونيسيا تقومان بتطبيق الشريعة وبيان حكم الوقائع المتباينة، والمتعددة (إصدار الفتوى) إلى تطلع المسلمين الإندونيسيين إلى معرفة حكم الله فيها لمعرفة حلالها من حرامها، وصحيحها من فاسدها، ومقبولها من مردودها، إلا قد وقع بينهما مرة بعد مرات الإختلافات في فتاوهما في الحل والحرمة، فهذا يحث الباحث إلى بحث هذا الموضوع لكشف النقاب في هذه الإشكالات. فيدور هذا البحث حول مناهج الإفتاء المتبعة لدى كل من لجنة الفتوى التابعة لجمعية نهضة العلماء ولجنة الفتوى في جمعية محمدية إندونيسيا. ويتناول بالبحث والمقارنة الأصولية المصادر التي سلكها كل منهما مع تطبيقاتها في فتاوى الحل والحرمة للجمعيتين. ولعرض منهجية الإفتاء تحت ضوء الفقه وأصوله عامة وصناعة الفتوى خاصة، يسلك الباحث منهج التحليل، والمنهج المقارن ليقارن بين ما يتعلق بالفتوى لدى المجلسين من حيث المنهجية وتطبيقاتها، بينما ينتهج منهج التحليل لاستقصاء القضايا بالفتاوى التي عرضت على لجنتي الفتوى، مع الاستفادة مما كتبه الأصوليون والفقهاء في هذا المجال قديماً وحديثاً من خلال هذه المناهج العلمية الثلاثة، تبحث وإضافة إلى ذلك، تعرج على بيان أوجه هذه الدراسة عن فعالية الفتوى التي تؤدي دوراً كبيراً مهماً في المجتمع الإندونيسي الاتفاق والاختلاف بين منهجي الفتوى لديهما، مع النظر إلى مدى تمسك لجنتي الفتوى بهذه المنهجية في إصدار فتاويهما.

كلمات مفتاحية: منهج - إفتاء - نهضة العلماء - محمدية

IBN HAZM'S *ISTIHALAH*: A JURISPRUDENTIAL AND CHEMICAL STUDY OF SUBSTANCE TRANSFORMATION

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Abstract: Understanding concept of *istihalah* is crucial for addressing contemporary issues in Islamic jurisprudence, such as the permissibility of transformed substances in food and pharmaceuticals. Imam Ibn Hazm extensively addressed the concept of *istihalah* in his scholarly works. This study aims to examine the concept of *istihalah* as articulated by Imam Ibn Hazm, exploring the jurisprudential foundations and principles used, and developing an analysis from the perspective of chemistry. This research explores the concept of *istihalah*, as proposed by Imam Ibn Hazm, and delves into the jurisprudential principles underlying this concept. Imam Ibn Hazm's approach is rooted in the strict adherence to the Qur'an and Sunnah, avoiding the use of analogy that other schools might employ. Imam Ibn Hazm posits in his concept of *istihalah* that the legal ruling hinges on the name, thus a change in name signifies a change in legal status. The research incorporates an analysis from a chemical perspective, examining the processes and transformations that substances undergo. By integrating the principles of chemistry, the study seeks to provide a comprehensive understanding of how *istihalah* is applicable in contemporary contexts, such as the food industry and pharmaceuticals. This multidisciplinary approach not only enriches the Islamic jurisprudential discourse but also offers practical insights for addressing modern-day issues involving substance transformation.

Keywords: Ibn Hazm; *istihalah*; jurisprudence; substance transformation



THE COMPARISON OF PRINCIPLE OF THE TRANSFORMATION (*ISTIHALAH*) AND DECOMPOSITION (*ISTIHLAK*) ON PREVENTIVE MEDICINES BETWEEN VACCINE AND ENOXAPARIN SODIUM FROM MAJLIS KEBANGSAAN ISLAM (MKI) RESOLUTIONS IN MALAYSIA

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Abstract: The emergence of halal industries nowadays is soaring around the globe including pharmaceutical industries. Pharmaceutical, often, deemed as essential and considered almost inevitable from any ingredients that is considered as filth (*al-najasad*) in Islam such as porcine tissues, carcass, blood and alcohol. However, with the advancement of technologies, the manufacturing of medicines up to the point of enable the removal of DNA of porcine that known in *fiqhi* device such as chemical transformation (*istihalah*) and decomposition (*istihlak*). This paper that employs qualitative methodology and content analysis method compares the principle of *istihalah* and *istihlak* upon two preventive medicines: Vaccine and Enoxaparin Sodium in regard to analyzing the context of sources that scientifically transformed and discussing the reasoning (*ijtihad*) towards both preventive medicines forwarded by Majlis Kebangsaan Islam (MKI) Resolutions in Malaysia. This paper finds that the manufacture of certain vaccine and Enoxaparin Sodium been accepted as preventive medicines for threatening life diseases, but vaccine is more accepted in a positive way by MKI while Enoxaparin Sodium still conflicted in its using in Malaysian Government hospitals.

Keywords: *not provided*



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PERCEPTION OF MUSLIM CONSUMERS IN MALAYSIA REGARDING CONFIDENCE AND CHALLENGES IN IDENTIFYING PIG-SKIN-FREE LEATHER PRODUCTS

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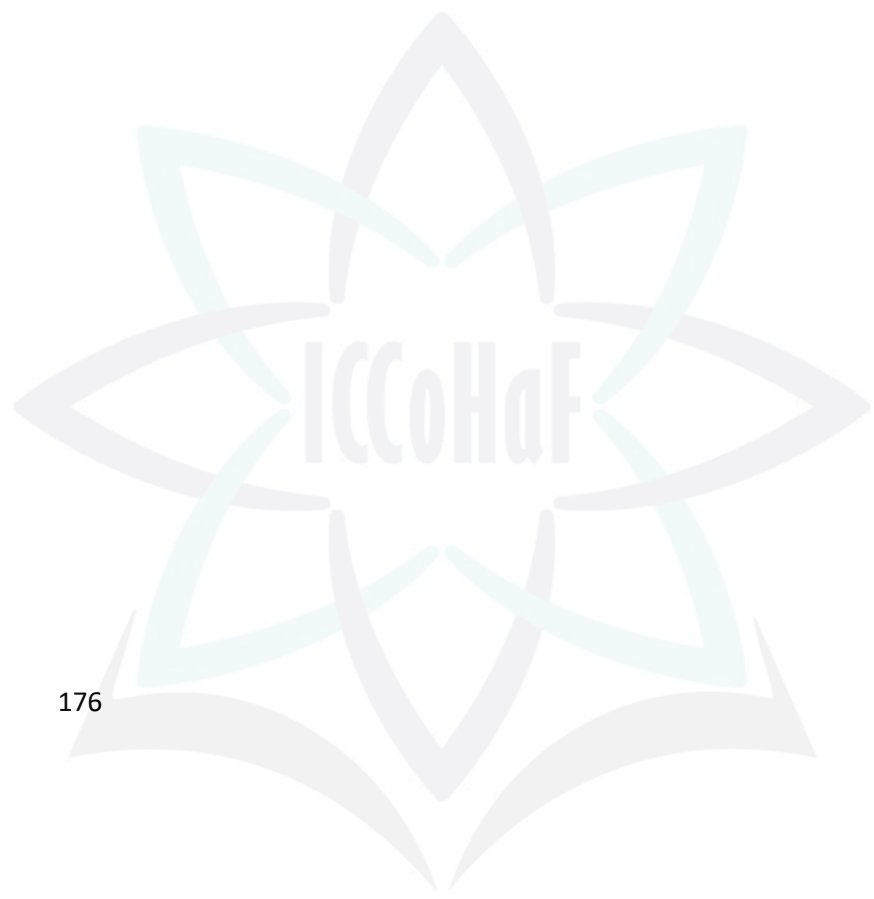
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Abstract: The application of the halal logo to a product provides evidence that the food or product that the institution offers has undergone halal auditing and verification by a halal certification agency such as JAKIM. The concept of halal is not just applied to food; it is also used to everyday goods such as belts, shoes, clothing, and so forth. However, Muslim consumers in Malaysia have not paid much attention to studies on the use of halal clothing, which has led to the misconception that the concept of halal is exclusive to the food industry. This problem opens up space for irresponsible parties to cheat or mix halal and non-halal goods, especially in the textile and fabric industry. Therefore, the objective of this study is to identify the challenges and obstacles faced by Muslim consumers in identifying pork skin-free products. There are three variable factors that were studied in the study are perception, challenges and solutions in identifying pig skin free products for Muslim consumers in Malaysia. This study uses a quantitative method which is the distribution of questionnaires through the google form platform to respondents. Data analysis was done using IBM SPSS Statistics for Windows Version 24.0 software. The data is collected through the reliability of the variable Cronbach Alpha (CA) values are as follows; knowledge (CA = .723), attitude (CA = .784), perception (CA = .634) and understanding (CA = .536). The findings are expected to open up more research opportunities related to the knowledge, attitudes and perceptions of consumers towards the halal logo recognized by JAKIM and empower the consumption of halal products in Malaysia.

Keywords: Perception, Knowledge, Understanding, Halal Logo

Poster Presentations' Abstracts





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HALAL IN THE MODERN WORLD: SUSTAINABILITY VIA DIGITAL TRANSFORMATION

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Abstract: The intersection of halal principles with digital transformation significantly influences sustainability and human resource management (HRM) practices. The halal sector, which adheres to Islamic dietary and ethical guidelines, increasingly leverages digital technologies such as blockchain, the Internet of Things (IoT), and artificial intelligence (AI) to enhance transparency, traceability, and operational efficiency. Blockchain technology reinforces the reliability of halal certification, while IoT devices facilitate real-time compliance monitoring across supply chains. AI aids in strategic decision-making and talent acquisition, adapting to the sector's evolving demands. Additionally, e-commerce and mobile apps are expanding the global reach of halal businesses, creating a need for new HR roles and expertise in digital marketing and IT support. This digital integration promotes sustainability by reducing waste and improving efficiency, consistent with Islamic management principles. However, it also presents challenges for HRM, such as the need for continuous development and managing international partnerships. Overall, digital transformation is reshaping the halal industry, requiring HR departments to adapt through comprehensive training programs and sustainable practices to ensure industry growth while maintaining ethical standards.

Keywords: Halal Industry, Digital Transformation, Sustainability, Human Resources Management (HRM), e-commerce

HALAL AUTHENTICATION: PORCINE DNA DETECTION IN CATFISH USING REAL-TIME POLYMERASE CHAIN REACTION (qPCR)

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Abstract: African catfish (*Clarius gariepinus*) which is an omnivorous species is one of the most demanding aquaculture fish in Malaysia. Due to its tolerance to crowding and ease of adaptation to a wide range of environmental circumstances, fish breeders have improperly feed the fish with impurities due to the lower cost needed. To ensure the halal authentication of local catfish, the detection of porcine DNA in catfish were examined from two local sellers. This study is significant in ensuring the halal status of catfish in wet market, especially for Muslim consumers in Malaysia. DNA extractions were performed on a few parts of catfish including flesh, stomach and fin to determine the organ that produce high yield of DNA. Fin showed high concentration compared to others which was 241.33 ng/ μ L. Wizard Genomic DNA purification kit was used to isolate DNA from fin as it produced higher quality and quantity of DNA. Analysis of extracted DNA on BioDrop DUO UV/VIS Spectrophotometer showed the ratio of absorbance at 260/280 nm were range between 1.8 – 2.0 indicating high quality of DNA. Then, the presence of porcine DNA was detected using real-time PCR (qPCR) for its specificity, sensitivity, and simplicity in detecting even small fragments of DNA in real-time. Result showed positive detection of porcine in five sample of catfishes out of 18 samples. These results demonstrated that there was contamination in catfish with pig. This finding highlighted the importance of correct protocol in extracting DNA from intact tissue in yielding high concentrations and purity of DNA. Besides, the authoritative bodies can make this study as reference to inspect aquaculture industries to ensure that livestock production adhere to the acceptable halal standard and thus improve the domestic and export market in the halal food industry.

Keywords: DNA extraction, Catfish, Porcine DNA, Real-time PCR, Halal perspective

ACCURACY OF PORCINE CONTAMINATION DETECTION IN FRESH WATER FISH FEED USING QUANTITATIVE POLYMERASE CHAIN REACTION (qPCR) AND LIQUID CHROMATOGRAPHY MASS SPECTROMETER (LC-MS)

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Abstract : This research examines the growing concerns regarding the halal status of freshwater fish farming in Malaysia, with a focus on aquaculture practices in Negeri Sembilan. A key issue is the use of non-halal ingredients, such as pig manure and its derivatives, in fish feed, which threatens the halal integrity of the fish. Animals fed with impure substances, known as Al-Jalalah, are deemed non-Halal, raising significant food safety and quality concerns among consumers. To address this issue, the study explores the application of advanced detection technologies—Quantitative Polymerase Chain Reaction (qPCR) and Liquid Chromatography- Mass Spectrometry (LC-MS)—for identifying porcine contamination in extruded fish pellets used in aquaculture. qPCR offers rapid, sensitive detection of porcine DNA, while LC-MS provides precise identification of porcine protein markers. These methods aim to improve halal verification processes and bolster consumer confidence in aquaculture products. The study also highlights the need to assess the accuracy of both qPCR and LC-MS in detecting porcine contamination, evaluating the strengths and limitations of each approach in the context of freshwater fish feed.

Keywords : Halal integrity, Freshwater fish farming, Aquaculture, Porcine contamination, Al Jalallah

SertuBOT: A REMOTE-CONTROL VACUUM CLEANER FOR SERTU SOLUTION

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Abstract: The presence of Mughallazah faeces causes various challenges. Initially, it may raise the chance of inadvertently coming into contact with excrement, which may disseminate germs and illnesses. Furthermore, it may leave behind unremoved excrement, which could lead to unpleasant odour pollution, an unattractive environment, and possibly increased health concerns for both humans and animals. This could limit the efficacy of manual cleaning operations. This prototype aims to implement sertu for faecal cleaning with remote control via mobile phone using MITT App Inventor. The prototype is developed for small-scale use, with the ability to purify impurities within a half-foot area. The study was developed using the Rapid Prototyping Model for the product development approach. The use of this model allows rapid development of prototypes by engaging users throughout the development process. The results show that fecal cleaning via sertu method according to Islamic cleansing process using remote control via Bluetooth is very effective, operative and efficient. The sertu implementation is part of the requirement in Halal Assurance System for Malaysian Halal Certification application. This prototype acting as a vacuum cleaner has been proposed to halal industry partners for future collaboration and commercialization.

Keywords: Sertu, Islamic cleansing, mughallazah, halal industry, Halal Assurance System

INTEGRATING HALAL AUTHENTICATION INTO BIOTECHNOLOGY EDUCATION: OPPORTUNITIES AND CHALLENGES IN MALYSIAN UNIVERSITIES

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Abstract: The integration of halal authentication into biotechnology education is becoming increasingly imperative in Malaysian universities to meet the growing demand for skilled professionals in the halal industry. This study investigates the current state of halal authentication education within biotechnology degree programs, focusing on the opportunities and challenges faced by Malaysian universities. Through a comprehensive literature review and qualitative analysis of curriculum documents, this study identifies gaps in existing educational offerings and explores strategies for enhancing halal authentication education. The findings reveal a need for specialized courses and practical training modules addressing halal authentication, along with interdisciplinary collaboration and industry partnerships to overcome resource constraints and faculty expertise gaps. Drawing on international best practices and case studies, a framework is proposed for developing halal authentication education initiatives within biotechnology programs, offering insights for academia, industry and policymakers. This study contributes to the advancement of halal education in Malaysia and provides a roadmap for universities seeking to integrate halal authentication into biotechnology degree programs.

Keywords: Halal authentication; Biotechnology; Halal education; Halal industry; Malaysian universities

PRODUCTION OF HEVEA BRASILIENSIS- BASED TEMPEH: NUTRITIONAL COMPOSITION AND PHYSICOCHEMICAL PROPERTIES

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Abstract: This paper investigates the novel production of tempeh using *Hevea brasiliensis* seeds with the intention of providing two formulation of rubber seed tempeh (rubber seed tempeh 1, RS 1; rubber seed tempeh 2, RS 2) comparing to traditional soybean tempeh (Control, C). This study found that rubber seed tempeh (RS 1 and RS 2) contains 0.07% ash content, 1.11– 4.38% of moisture content, 23.84 - 24.40% of fat, 9.50-11.05% of protein and 7.11- 10.55% of carbohydrate respectively. In term of texture profile analysis (TPA), there are no significant difference between Control, RS 1 and RS 2, indicating that rubber seed tempeh is suitable to be a novel tempeh. The TPA results showing that rubber seed tempeh exhibits a lower springiness when compared to traditional soybean tempeh, while remaining edible and suitable for consumption. The study commences by delineating the procedures involved in the selection, preparation, and fermentation of *Hevea brasiliensis* seeds. The methodology involves regulating the fermentation conditions in order to maximize the development of *Rhizopus oligosporus*, the pivotal fungus responsible for fermenting tempeh. This research not only underscores the suitability in tempeh production of *Hevea Brasiliensis* seeds in food applications, but it opens avenues for the utilization of agricultural waste, contributing to the circular economy and reinforcing the global agenda for sustainable development.

Keywords: *Hevea Brasiliensis*, Tempeh, Soybean Tempeh, Nutritional Composition, Physicochemical Properties, Rubber Seed



IDENTIFICATION OF PORCINE DNA AND PROTEIN IN COMMERCIAL CAT FOOD FOR POTENTIAL MISLABELLING AND HALAL AUTHENTICATION

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Abstract: In Islam, porcine is considered impure and its use, along with any derivatives, is prohibited for Muslims. As the trend of pet ownership, particularly of cats, rises among Muslims, the pet food industry experiences significant growth. This expansion, however, unveils unethical practices, such as the inclusion of cheaper and prohibited substances like porcine in processed products, driven by its affordability and availability. Cat food containing porcine raises questions about its compliance with Halal standards. Hence, this study aimed to detect porcine DNA and protein in five commercially available cat food types near Bandar Baru Nilai. Utilizing PCR, RT-PCR, and FTIR-ATR analyses, the research aims to identify potential mislabeling and Halal authentication of cat food. DNA based assay (PCR and RT-PCR) focused on detecting porcine DNA using specific primers, with RT-PCR indicating positive results for some samples (B1, B2, C1, C2, C3, E1, and E2). FTIR analysis, through spectral comparison and PCA analysis, could identify cat food with pork sources, revealing that the tested cat food samples did not share characteristics with pig-derived products. This investigation is crucial for ensuring the Halal integrity of cat food, aligning with the dietary and religious preferences of Muslim consumers.

Keywords: cat food, Halal, porcine, DNA-based assay, FTIR-ATR

PHYSICOCHEMICAL PROPERTIES AND CONSUMER ACCEPTANCE OF DIFFERENT PRE-TREATMENT OF BEEF JERKY PRODUCTION

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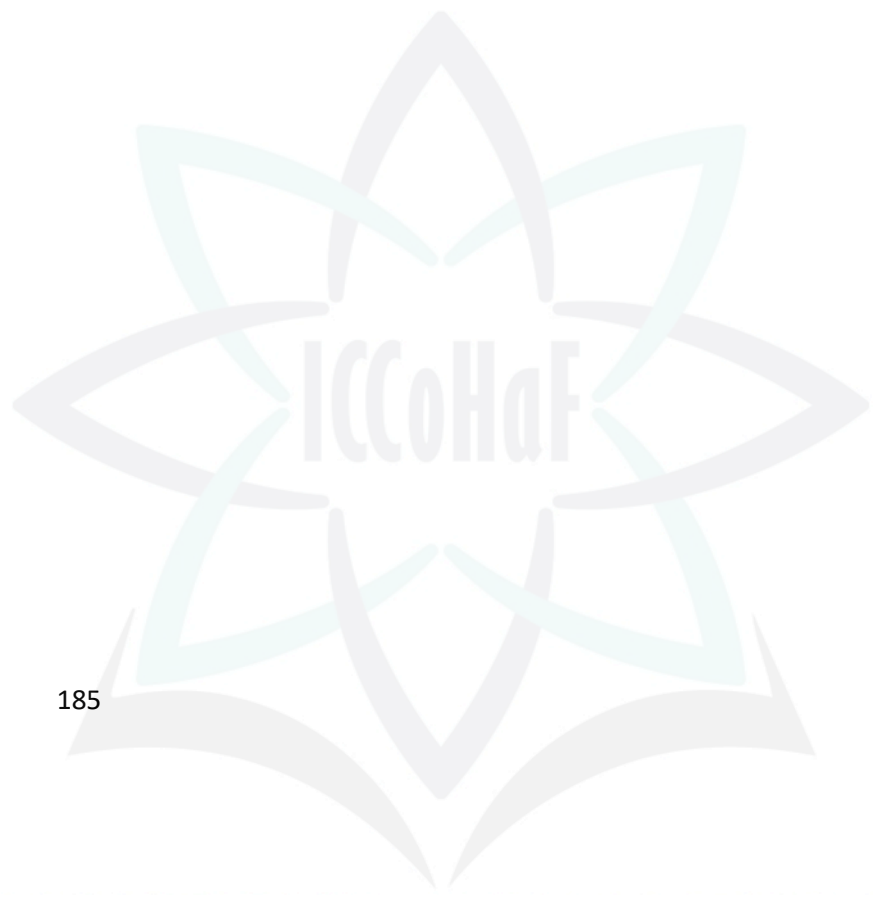
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Abstract: This study explores the physicochemical properties and consumer acceptance of traditional flavoured beef jerky with coconut milk chilli prepared from different pre-treatment of lean cuts. The impact of different pre-treatments of lean cuts before processing to jerky which are pounded, simmering in boiling water, and treated with bromelain enzymes affected the physicochemical, nutritional, and sensorial properties. Results found that beef lean cut pre-treatment with bromelain enzyme obtained the highest shear force, firmness, and water activity compared to other pre-treatment, and control sample. The water activity of the beef jerky pre-treatment with bromelain enzyme was found significantly ($P < 0.05$) the highest (0.87) compared other beef jerky with the ranged of water activity were between 0.71 and 0.77. Additionally, the moisture content of the beef jerky that was pre-treatment with bromelain enzyme was also significantly the highest (0.42%) compared to other beef jerky. In the term of protein, the beef jerky that was pre-treated with bromelain enzyme was significantly the lowest (51.25%) compared to other beef jerky (56.34% to 66.52%). Sensory analysis using hedonic test with 9-scale also found that the beef jerky that pre-treatment with bromelain enzyme obtained significantly ($P < 0.05$) the highest mean score of all sensory attributes of appearance, colour, smell, firmness, chewiness, aftertaste, spiciness, and overall acceptance with the mean score between 6.78 to 7.58. Thus, this study concluded that the traditional beef jerky flavoured with coconut milk chilli have potential to be commercial in the market since consumers can well accept this product.

Keywords: coconut milk chilli jerky, traditional beef jerky, beef jerky preference, jerky texture

Innovation Competitions' Abstracts





SOW HOPE: WARAQAH PLANTABLE SEED PAPER FOR SUSTAINABLE ENVIRONMENT

Zulfah Syauqina Muhamad^{1,a*}, Ikram Mirza Sufri^{2,b}, Siti Nur Ameerah Syahirah Azis^{3,c}, Siti Nur Rabi'atul Adawiah Abu Bakar^{4,d}, Nor Surilawana Sulaiman^{5,e}

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Abstract: The alarming reality of paper waste, identified as one of the top four compositions of municipal solid waste (MSW) disposed of at the Sungai Paku Engineered Landfill, Brunei, underscores a pressing environmental concern. With waste levels at an all-time high and environmental challenges reaching a critical point, the need for ethical consumption practices aligned with Islamic principles has never been more urgent. An innovative solution has emerged in this context: plantable seed paper with the brand name Waraqah. This solution, which champions Sustainable Development Goals (SDGs) by effectively recycling paper waste, offers an efficient and ethically responsible disposal method, significantly mitigating contributions to global warming and environmental degradation. Furthermore, Waraqah, committed to promoting sustainability, has taken significant strides to encourage community involvement in achieving SDGs 12 (Responsible Consumption and Production), 13 (Climate Action), and 15 (Life on Land). Through profitable initiatives exclusively focused on paper waste contribution, Waraqah addresses environmental concerns and fosters economic opportunities for local communities, a beacon of hope in these challenging times. These efforts align with broader environmental and developmental objectives and contribute to forging a more sustainable future for Brunei Darussalam and beyond, reinforcing the integration of halal lifestyle principles into environmental conservation efforts.

Keywords: Halal Lifestyle, Paper waste, Plantable Seed Paper, Solution, Sustainability

INTEGRATION MODEL MEDICAL-SYARIAH IN USING PORCINE BASE MEDICINE DURING PREGNANCY AND PUERPERIUM

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Abstract: Obstetric embolism refers to a serious condition when the amniotic fluid or foetal materials enter the mother's bloodstream. Venous thromboembolism (VTE) is one of the event that lead maternal death cause in Malaysia. In that case, mothers with greater risk of VTE during pregnancy and puerperium are required to undergone the procedure of thinning the blood clot with a porcine based medicine namely Low Molecular Weight Heparin (LMWH) as mentioned in Clinical Practical Guideline (CPG) provided by Ministry of Health (MOH). A dilemma amongst patients, physicians and pharmacists trapped into a worst situation when risk mothers with VTE who are in tenacious life are petrified in taking the LMWH while Obstetric & Gynecology (O&G) doctors, not to mention non-Muslim doctors, are struggling to explain verbally to the patients and their families with confident regarding the fatwa of consuming that controversial medicine. The verdict of necessity (*darurah*) related to VTE amongst pregnant mothers seem scarce in implying the situation of medical with syariah to uptake the medicine. This innovation is related to develop a model that integrating between medical and syariah in describing the hukum in using LMWH towards mothers in greater risk of VTE during pregnancy and puerperium. Attributing to have this integration model particularly upon mothers with high and moderate risk, this model of innovation is recommended to harmonize the crisis of understanding the situation of *darurah* when the patients with risk of VTE actually facing the lethal disease.

Keywords: Venous thromboembolism (VTE), Low Molecular Weight Heparin (LMWH), *darurah*, porcine base medicine.



THE IMPACT OF HALAL ASSURANCE SYSTEM IMPLEMENTATION ON OPERATIONAL PERFORMANCE IN THE LEATHER INDUSTRY

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Abstract: This study is motivated by the current issue that the Indonesian government has mandated specific industries, both in the food and non-food sectors, to implement HAS. The leather industry is one such industry that must comply with this regulation. Regardless of the crucial reasons behind this regulation, the industry players need to understand the benefits of implementing Halal Assurance System (HAS) from a business point of view. Halal is often seen as a signal of good quality among consumers. However, labelling non-food products as Halal is still a subject of debate. This study aims to examine the effects of implementing the HAS on the Operational Performance (OP) of the leather industry in Indonesia. A conceptual framework of the relationships was developed using the seven criteria of HAS 23000, the Halal standard in Indonesia. Hypotheses were formulated to measure the impact of each criterion on the OP of the leather industry. A quantitative approach using a questionnaire was employed among SMEs located in one of the leather industry centres in Indonesia. SPSS and Smart-PLS 4 were used for data analysis. Results from the bootstrap output show that only Written Procedures (WP) significantly improve the OP of SMEs. This indicates that the implementation of HAS among SMEs in the leather industry in Indonesia is still lacking. Further analysis using IPMA is presented in this research to analyse the main practices that SMEs in the leather industry need to perform to effectively implement HAS in their organization.

Keywords: HAS, Leather Industry, Operational Performance



HALAL EDUGASTRONOMY TOURISM (HEGTo) FEATURE IN SMARTHALAL APPLICATION

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Abstract: Halal EduGastronomy Tourism (HEGTo) is an approach of travel to taste local food which the production, preparation, and serving of it related to the culture and history that adheres to the requirements of halal standards, while education component in HEGTo is to enhance Halal awareness level among the entrepreneurs and consumers. SmartHalal is one of the ways to educate as it is an application where to help consumers in checking the status of Halal schemes that have achieve the Malaysian Halal Certification. However, this application is not being use frequently even SmartHalal is an application from Malaysia government itself since most of consumers may using other social medias to follow the updated halal issues as well as there is another application similar with SmartHalal. SmartHalal can be consumer friendly if we added the HEGTo feature in this application. Halal gastronomy is crucial element for Muslim tourists from local or international to verify the status of the premises before dining in that place. Hence, consumers can identify nearby Halal gastronomy premises using HEGTo feature in SmartHalal. Moreover, the premises, restaurants, and local food producers can promote their products in HEGTo to gain popularity among tourists but one of the requirements to advertise in HEGTo must be Malaysian Halal Certification holder. This will encourage local food sellers to apply for the Halal certification. Interestingly, this will help the government mainly the Department of Islamic Development Malaysia (Jabatan Kemajuan Islam Malaysia -JAKIM) to receive some capitals from the ads in HEGTo. Therefore, integrating HEGTo feature into the SmartHalal app can enhance its consumer appeal by helping users locate halal certified eating options, thus promoting local halal certified businesses.

Keywords: halal, gastronomy, tourism, SmartHalal, promoting, consumer, seller



AI-POWERED TELEGRAM BOT: A CONVENIENT SOLUTION FOR FATWA QUERIES AND HALAL VERIFICATION

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Abstract: In today's digital era, easy access to religious guidance and halal product verification is essential for the Muslim community. This innovative project introduces an AI-powered Telegram Bot specifically designed to answer fatwa questions and verify the halal status of products. The bot leverages Artificial Intelligence (AI) and Machine Learning to provide accurate and prompt responses. The Telegram Bot offers two main functionalities. First, it can answer frequently asked fatwa questions. Using Natural Language Processing (NLP), the bot understands and interprets user queries, matching them with an extensive database of fatwas. This ensures that the responses are authentic and relevant, based on trusted sources. Second, the bot allows users to verify the halal status of products. Users can send product barcodes or search for product names via text. Image recognition and text analysis technologies are employed to check the halal product database, providing detailed information about the product's halal status, including its ingredients and the certifying halal body. Although this project is currently in the conceptual stage, it has a clear development roadmap. The initial phase involves creating a prototype that integrates basic functionalities such as query handling and a preliminary halal product database. Subsequent phases will focus on refining AI algorithms, expanding the database, and enhancing the user interface. This innovation not only enhances access to authentic religious information but also simplifies the decision-making process for users in their daily lives. With a user-friendly interface and multilingual support, the bot is suitable for the global Muslim community. The project has the potential to grow and significantly impact ensuring the needs and interests of Muslims are consistently met.

Keywords: Telegram Bot, Artificial Intelligence, Fatwa, Halal, Natural Language Processing, Machine Learning.



INTEGRATING HALAL AUTHENTICATION INTO BIOTECHNOLOGY EDUCATION: OPPORTUNITIES AND CHALLENGES IN MALYSIAN UNIVERSITIES

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Abstract: The integration of halal authentication into biotechnology education is becoming increasingly imperative in Malaysian universities to meet the growing demand for skilled professionals in the halal industry. This study investigates the current state of halal authentication education within biotechnology degree programs, focusing on the opportunities and challenges faced by Malaysian universities. Through a comprehensive literature review and qualitative analysis of curriculum documents, this study identifies gaps in existing educational offerings and explores strategies for enhancing halal authentication education. The findings reveal a need for specialized courses and practical training modules addressing halal authentication, along with interdisciplinary collaboration and industry partnerships to overcome resource constraints and faculty expertise gaps. Drawing on international best practices and case studies, a framework is proposed for developing halal authentication education initiatives within biotechnology programs, offering insights for academia, industry and policymakers. This study contributes to the advancement of halal education in Malaysia and provides a roadmap for universities seeking to integrate halal authentication into biotechnology degree programs.

Keywords: Halal authentication; Biotechnology; Halal education; Halal industry; Malaysian universities



PRELIMINARY ANALYSIS OF SHARIAH AND LEGAL PARAMETERS FOR MEDICAL ADHESIVES ACCORDING TO HALAL FORENSIC CONCEPT

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Abstract: Medical adhesives are used extensively in medicine and healthcare, particularly for wound care, surgical operations, and medical device installation. For Muslim patients, the source of the material and the contents of medicinal adhesives may include impurities, preventing the patient from becoming pure. This concept paper was developed for identifying Shariah criteria and legal parameters for medical adhesives leveraging the Halal Forensics concepts. This is a documentary research in which primary and secondary reference sources are selected to collect accurate data on past studies and the substance of medical adhesives used in Malaysia. The data is analysed using an inductive content analysis approach, and the discussion will also consider how the usage of medical adhesives is defined under current law, including industry recommendations. The idea proposed comprises a framework for the interaction between the use of medical adhesives containing gelatine and its relationship with Islamic legal sources, laws, and halal standards based on Forensic Halal principles. This concept paper concludes with several solutions and suggestions for improving the use of medical adhesives, particularly in determining parameters based on Shariah standards, legal provisions, and research findings, all of which will have an impact on the community's use of halal medical adhesives.

Keywords: medical adhesive, gelatine, medical device, halal forensic



WAKAF SEBAGAI INSTRUMEN MODEL PERUSAHAAN DAGING HALAL

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Abstrak: Kajian ini bertujuan menerangkan model perusahaan daging halal menerusi penggunaan instrumen wakaf. Wakaf adalah kaedah 'crowd funding' yang berkesan bagi mewujudkan perusahaan industri daging halal di Malaysia. Lantaran pelbagai isu yang berlaku seperti dominasi kartel daging; pemalsuan dan penipuan logo halal; integriti dalam pengurusan dan penguatkuasaan halal menjejaskan kredibiliti Malaysia sebagai hab halal antarabangsa. Kajian berdasarkan temubual dengan pihak autoriti dan pengusaha daging halal menatijahkan wakaf sebagai instrumen yang berkesan. Kajian ini juga perlu dilanjutkan dengan penyelarasan dan asas undang-undang agar industri ini lebih mapan pascamasa akan datang.

Kata kunci: Wakaf, Daging halal, Wakaf industri halal, Model wakaf halal



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LAYYEEN SERTU KIT FOR MUGHALLAZAH FILTH CLEANSING IN HALAL INDUSTRY

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Abstract: Sertu or islamic cleansing is a mandatory requirement for obtaining certification. Sertu is the purification process for mughallazah filth, involving seven washes in which six with pure water and one with pure water mixed with soil. In large-scale industrial production, it is inevitable that some situations may lead to the contamination of equipment with mughallazah filth, necessitating a purification process in accordance with Shariah standards. The process becomes challenging when it involves large-scale and sensitive industrial tools and machinery. In this context, the type of soil used for the sertu process is crucial, as selecting inappropriate soil can impact the industrial equipment. Choosing suitable soil is essential to ensure the sustainability of nine halal certification schemes. Thus, the Layyeen Sertu Kit provides an ideal solution for the sertu process, particularly for sensitive machinery and equipment in industries, ensuring shariah compliance and halal standards.

Keywords: Layyen sertu, halal, water, mughallazah, soil, shariah



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INOVASI E-MODUL LAFAZ TALAK TA'LIQ TIDAK RASMI SUDUT FIQH DAN PSIKOLOGI

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Abstrak: Inovasi yang dihasilkan merujuk kepada penambahbaikan perkhidmatan berbentuk e-modul sebagai panduan kepada pasangan suami isteri berkenaan konsep dan tatacara lafaz talak ta'liq tidak rasmi. Isu pengucapan talak ta'liq tidak rasmi sering dikaitkan dengan perselisihan faham dan tiada tolak ansur antara suami dan isteri, sehingga terucap suatu pengucapan lafaz cerai oleh suami yang terikat dengan syarat tertentu. Kesannya, isu lafaz talak ta'liq tidak rasmi boleh meningkatkan jumlah kes cerai luar mahkamah dan menyebabkan penganiayaan status seorang isteri. Oleh itu, inovasi e-modul ini bertujuan untuk membantu pihak-pihak terlibat seperti Jabatan Agama Islam Negeri, Jabatan Kemajuan Islam Malaysia dan Jabatan Kehakiman Syariah Malaysia dalam menyebarkan maklumat dan informasi berkaitan tatacara lafaz talak ta'liq tidak rasmi, memberi kesedaran dan penjelasan berkenaan teknik komunikasi berkesan kepada pasangan suami isteri dan menjelaskan perbincangan hukum berkaitan lafaz talak ta'liq tidak rasmi. E modul ini juga bukan sahaja mengutarakan sudut syariat Islam tetapi juga menghubungkan sudut psikologi. Melalui inovasi e modul ini diharapkan dapat membantu suami untuk perlu lebih berwaspada dan berhati-hati terhadap lafaz talak ta'liq tidak rasmi kerana ia membawa impak yang besar terhadap kelangsungan institusi kekeluargaan di Malaysia.

Kata kunci: E-modul, lafaz talak, ta'liq tidak rasmi, komunikasi, pasangan

i-ESG COMPLIANCE

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Abstract: i-ESG (Islamic-ESG) is an innovative product to assess the ESG compliance of the company based on Sharia requirements. The Malaysian government has recently strongly encouraged business entities to incorporate ESG into their operational activities to minimise various issues such as climate change, employee welfare, consumer protection, corruption and unethical business. However, ESG is still new, and many are not familiar with its complex requirements including its relationship with Islamic values and principles due to lack of knowledge and technical expertise. Thus, i-ESG is constructed which involves a summary checklist of i-ESG guidelines. To ensure that their operations conform not only to ESG requirements but also permissible from the eyes of Sharia, the user can easily use this list. This product development comprises four major processes and methodologies. In Stage 1, various ESG guidelines were examined. In stage 2, the comprehensive guidelines will be sorted and grouped based on their significance and characteristics. This guideline will be re-examined from Sharia' perspectives in Stage 3. In the final stage, or Stage 4, the company's operations will undergo scrutiny based on the created checklist. This innovation is original as it blends conventional and Sharia' requirements that are more suitable for the Malaysian context and local business environments which really concern on halal compliance type of business. By using this product, it will increase ESG compliance by the business, attract more investment for the business and increase customer based particularly f

Keywords: E

Committee Members

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