

THE ISTIHALAH (استحالة) CONTENTION IN
GELATIN ISSUES AND POTENTIAL OF
HALAL GELATIN ALTERNATIVE FROM
GALLUS GALLUS DOMESTICUS USING NOVEL
METHOD

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ABSTRAK

Secara asasnya, istilah halal adalah mudah untuk difahami apabila merujuk kepada perkara yang melibatkan pematuhan Shari'ah terutamanya makanan, yang pada asalnya bukan haram atau diperolehi daripada sumber yang haram. Pada masa kini, penyediaan makanan bukan lagi sesuatu yang mudah tetapi lebih kompleks dengan pengenalan kepada ramuan dan bahan tambah seperti gelatin untuk menambahbaik rasa dan rupa pada makanan. Penambahan gelatin telah merubah makanan kepada karakter yang lebih berdaya tahan. Walaubagaimanapun, ramuan makanan ini menjadi kontroversi kepada pengguna Muslim kerana ia berasal dari sumber yang tidak halal seperti khinzir. Melalui *Maqasid Shari'ah*, Ijtihad dari Ahli Fiqah Islam, Sarjana Islam, dan Mazhab berkenaan gelatin porsin telah terbahagi kepada dua (2) pendapat. Oleh itu, objektif pertama kajian ini bertujuan menjelaskan secara terperinci berkenaan perspektif Shari'ah terhadap Istihalah gelatin. Objektif kedua bertujuan untuk menggabungkan Undang-undang Islam dengan bukti Sains dan Teknologi, dilaksanakan melalui metodologi saintifik (teknik ekperimental) iaitu analisis kuantitatif. Gelatin alternatif dicadangkan daripada *Gallus gallus domesticus* (kaki ayam) yang mematuhi Analisis Mudarat Titik Kawalan bagi unggas. Konsep *Halalan Toyyiban* meliputi aspek kebersihan, keselamatan dan kualiti diuji melalui sifat fizikal dan kimia bagi gelatin *Gallus gallus domesticus* (kaki ayam). Kaedah pengekstrakan novel yang menggabungkan rawatan asid dan alkali digunapakai untuk mengganggu tisu homogen *Gallus gallus domesticus*. Keputusan kualiti gelatin bagi kedua-dua rawatan ini setanding dengan gelatin lembu komersial. Secara keseluruhan, kualiti gelatin *Gallus gallus domesticus* memenuhi Piawaian Gelatin Antarabangsa. Objektif ketiga bertujuan untuk mengaplikasi gelatin *Gallus gallus domesticus* ke dalam produk makanan baharu iaitu Kaya Slice. Kaya Slice didapati lebih bernutrisi berbanding dengan kaya komersial. Sebagai penutup, *Gallus gallus domesticus* berpotensi menjadi alternatif kepada gelatin halal.

Kata kunci: Halal; Istihalah; gelatin; kaki ayam; alternatif

ABSTRACT

Fundamentally, a halal term for food is simple to understand as it refers to Shari'ah compliant in nature and sources, not originally haram or derives from haram sources. Nowadays, food preparation has no longer be simple but more complex with the introduction of ingredients and additives such as gelatin to improve the taste and look of food. The addition of gelatin has transformed food into a more resilient character. However, gelatin becomes controversial among Muslim consumers since more than 80% of gelatins are from a non-halal source, which is pork. Through *Maqasid Shari'ah*, the Ijtihad from Islamic jurists (ulama), Islamic scholars, and sects (Mazhab) regarding porcine gelatin have divided into two (2) points of view. Therefore, the first objective this study aims to clarify the Shari'ah views on Istihalah of gelatin comprehensively. The second objective aims to incorporate Islamic Law with the Science and Technology evidence, by conducting scientific methodology (experimental technique) through quantitative analysis. The alternative gelatin was proposed from *Gallus gallus domesticus* (chicken feet) that complied with critical control points (CCP) for halal poultry. The *Halalan Toyyiban* concept that covered the hygiene, safety, and quality aspect were inspected via physical and chemical properties of *Gallus gallus domesticus* (chicken feet) gelatin. Novel extraction methods that combined acid and alkali treatments were used to disrupt the homogenous tissues of *Gallus gallus domesticus*. The results for *Gallus gallus domesticus* gelatin quality for both treatments were comparable to commercial bovine gelatin. Overall, *Gallus gallus domesticus* gelatin meets the International Standard of Gelatin. The third objective aims to apply *Gallus gallus domesticus* gelatin in a new food product namely Kaya Slice. Kaya Slice was found to have more nutritious compared to commercial kaya. In conclusion, *Gallus gallus domesticus* has high potential to be an alternative to Halal gelatin.

Keywords: Halal; Istihalah; gelatin; chicken feet; alternative

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LIST OF SYMBOLS

al	Alkali
ac	Acid
°C	Degree Celcius
cP	Centipoise
>	Greater than
g	Gram
mL	Milimeter
μm	Micrometer
%	Percentage
°Brix	Degree Brix
pA	Pikoampere
kV	Kilovolt

LIST OF ABBREVIATIONS

S.W.T	Subhanahuwataa'la
S.A.W	Sollallahua'laihiwasallam
HEV	Hepatitis E Virus
GMIA	Gelatin Manufacturer's Institute of America
HDC	Halal Development Corporation Berhad
SMEs	Malaysian small and medium-sized enterprises
GDP	Gross Domestic Product
MIDA	Malaysian Investment Development Authority
MITI	Ministry of International Trade and Industry
JAKIM	Department of Islamic Development Malaysia
SOP	Standard Operation Procedure
GME	Gelatin Manufacturers of Europe
MOA	Ministry of Agriculture
MAFI	Ministry of Agriculture and Food Industries
DVS	Department of Veterinary Services
CCP	Critical Control Points
GAHP	Good Animal Husbandry Practice
SALT	Skim Amalan Ladang Ternak
HPLC	High Performance Liquid Chromatography
SEM	Scanning Electron Microscopy
EDX	Energy Dispersive X-Ray
AOAC	Association of Official Analytical Chemists
FCC	Foods Chemical Codex
FDA	Food and Drug Administration
GMP	Good Manufacturing Practice
CF	Chicken Feet
CFG	Chicken Feet Gelatin
CBG	Chicken Bovine Gelatin
EDTA	Ethylenediaminetetraacetic Acid
AAS	Atomic Absorption Spectrophotometer
ICP-MS	Inductive Couple Plasma-Mass Spectrophotometer

ANOVA	Analysis of Variance
TPA	Texture Profile Analysis
MCFAs	Medium Chain Saturated Fatty Acid

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