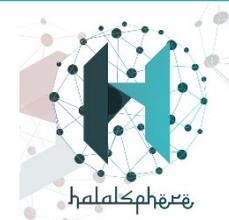


HALALSPHERE

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The halal positive list: streamlining the path to certification

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Abstract

Halal certification, a crucial religious guideline for Muslims, has evolved beyond merely excluding meat and alcohol to encompass a wide range of products, including food, cosmetics, chemicals, and pharmaceuticals. This expansion necessitates thorough examinations of ingredient sourcing and processing methods, making certification more complex and time-consuming. The Halal Positive List (HPL) was introduced to streamline this process and developed by Islamic scholars, food scientists, and industry experts. The HPL aims to simplify certification by providing a comprehensive list of pre-approved ingredients, saving time and resources while ensuring consistency and trust. However, challenges remain, particularly in achieving universal acceptance among certifying bodies and addressing the potential toxicity of single-molecule compounds. To enhance compliance, we propose the Halal-Tayyib Positive List (HTPL), which verifies the halal nature and the wholesomeness (*tayyib*) of ingredients, ensuring they are safe and ethically sourced. The framework categorises ingredients as non-critical, critical, or highly critical, streamlining the halal certification process with a straightforward, standardised approach.

Keywords:

Halal-Tayyib positive list; Halal certification; Ingredient evaluation; Standardisation

1. Introduction

Halal represents a crucial religious guideline for Muslims, a regulatory challenge for halal certification bodies, and a valuable marketing label for non-Muslim businesses (Dzikrulloh & Koib, 2021). For Muslim consumers, a halal certificate signifies alignment with their halal lifestyle. For non-Muslim consumers, it is an added layer of quality control (Wilkins et al., 2019). Traditionally, halal certification focused primarily on ensuring that ingredients were free from meat and alcohol. However, the scope of halal certification has expanded significantly. Today, it encompasses food, cosmetics, chemicals, pharmaceuticals, and devices (Alzeer & Abou Hadeed, 2020). This expansion has made the certification process more complex and time-consuming, requiring detailed laboratory testing, regular audits, and comprehensive certification reviews to thoroughly assess ingredient sourcing, production methods, and processing techniques.

The complexity of halal certification is closely related to the number of ingredients involved in production. Companies producing cosmetics, chemicals, and pharmaceutical products utilise various ingredients, making it essential to devise methods to facilitate halal certification (Alzeer, 2021). The Halal Positive List (HPL) was introduced to address the issues developed by Islamic scholars, food scientists, and industry experts. This list emphasises transparency and efficiency, simplifies manufacturer certification procedures, and saves time and resources.

By providing a comprehensive repository of approved ingredients, the HPL ensures consistency and builds trust within the halal industry, establishing a standardised framework for ingredient approval. This approach facilitates more straightforward and faster certification and reinforces the integrity and reliability of halal-certified products. The HPL is gradually being integrated into halal certification procedures. However, its widespread acceptance faces challenges due to differing schools of thought and the need for a universally accepted classification system among all halal certifying bodies (Zailani et al., 2017).

In this context, we aim to explore the various aspects of implementing the HPL in auditing procedures. By examining the advantages and disadvantages, challenges, and critical considerations related to the integration of the HPL, we aim to provide comprehensive insights into its potential impact on halal certification processes. Through this exploration, we seek to contribute to a deeper understanding of how the HPL can reshape auditing practices and ensure robust halal compliance.

2. Ensuring halal compliance with HPL

Ingredients are classified into non-critical, critical, and highly critical (Figure 1) to ensure comprehensive compliance with halal processing and production standards and facilitate their inclusion in the HPL. This systematic classification is essential for determining the necessary verification and certification steps and ensuring that all ingredients meet halal standards (Giyanti et al., 2020).

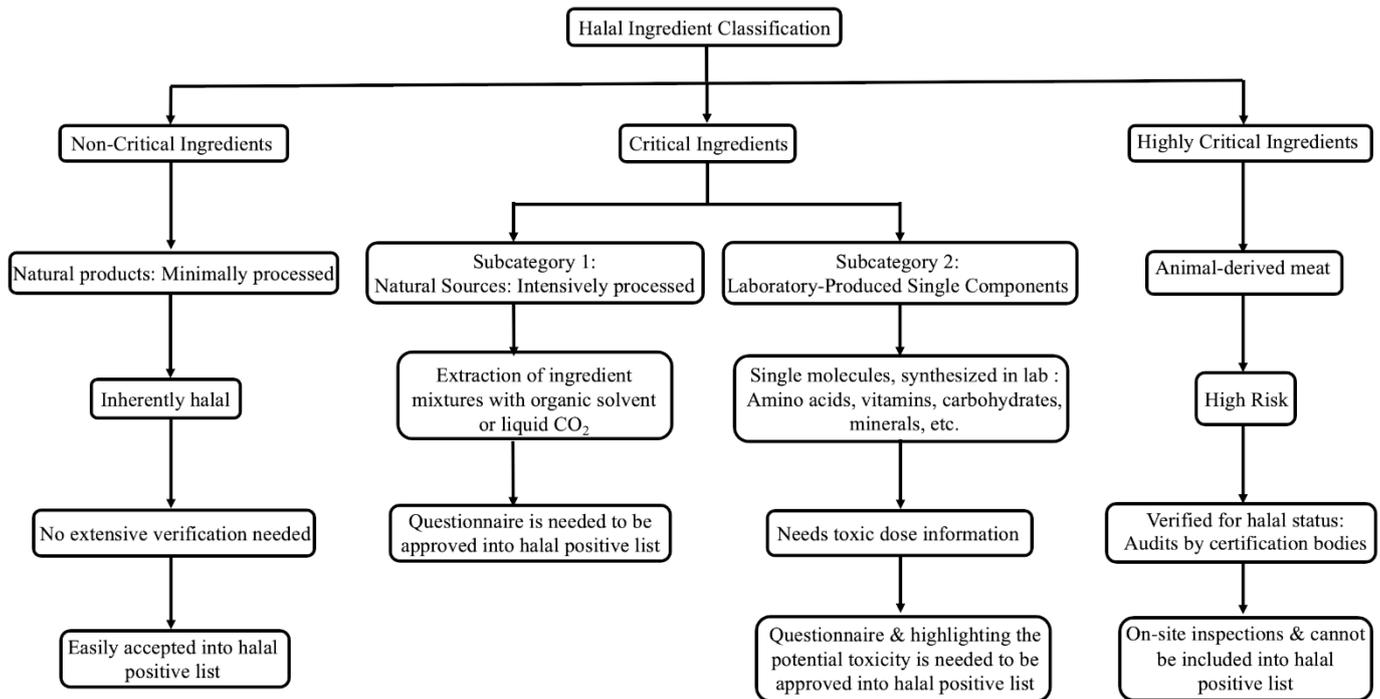


Figure 1: Halal positive list flow: classifies ingredients for halal list based on verification complexity.

2.1 Non-critical ingredients

Non-critical ingredients are naturally occurring and do not undergo processes that compromise their halal status. These inherently halal ingredients, like plant-based items such as fruits and vegetables, are generally included in the HPL without extensive inspection. Minimal processing (e.g., washing and cutting) and their low risk of contamination make them automatically acceptable, ensuring compliance with halal standards without the need for detailed verification.

2.2 Critical ingredients

Critical ingredients, whether naturally occurring or laboratory-produced, undergo processes that can impact their halal status. For instance, natural and artificial flavourings require thorough verification to ensure compliance with halal standards. Natural flavourings, often extracted using organic solvents like ethanol and a mixture of ingredients, require a detailed questionnaire for approval for the HPL (Alzeer & Abou Hadeed, 2016). This process assesses the entire production to ensure no non-halal substances are involved. Artificial flavourings, typically synthesised as single molecules, undergo multiple processing steps such as extraction, isolation, and purification, requiring even more rigorous verification. Single-molecule components have the potential to be toxic. However, dose determines toxicity. It is crucial to highlight in the questionnaire that such products have the potential to be toxic and must be used within a tolerable dose to be approved for the HPL. This comprehensive evaluation ensures that the ingredients are permissible and safe for consumption, adhering to strict halal standards.

2.3 Highly critical ingredients

Highly critical ingredients have a higher risk of being non-halal due to their origin, processing methods, or potential for cross-contamination. These ingredients often come from animal

sources or involve complex processing that requires thorough verification. For example, ingredients derived from animal sources must be verified for their halal status by ensuring the animals are sourced and slaughtered according to halal guidelines. Highly critical ingredients cannot be included in the HPL; they must have a halal certification verifying their origin and the slaughtering process. The halal certification process is strict and includes a comprehensive questionnaire and on-site inspections and audits carried out by the certification bodies. During these audits, both the documentation and the physical processes are thoroughly checked. For example, auditors review sourcing documentation to ensure that all raw materials are sourced from halal-certified suppliers and inspect production lines to ensure no cross-contamination between halal and non-halal products. They also assess cleaning protocols, equipment and storage practices to ensure full compliance with halal standards. This practical verification is essential to ensure that all ingredients are permitted and safe for consumption by halal principles (Annabi & Ibidapo-Obe, 2017).

The categorisation and verification processes ensure that all ingredients (non-critical and critical) included in the HPL adhere to stringent halal standards. This rigorous approach involves a thorough assessment of both the inherent nature of the ingredients and the processes they undergo. By categorising ingredients into non-critical, critical, and highly critical, the framework systematically evaluates each ingredient based on its potential risks and the complexity of its production process.

3. Halal-Tayyib positive list

According to *Shari'ah* law (*Hokm Shari'ah*), the default status of things is considered halal unless evidence is presented proving otherwise. Additionally, actions must comply with *Shari'ah* principles. To determine whether something is halal, both the nature of the item and the actions or processes it undergoes must be examined. This dual perspective explains

why the *Qur'an* frequently mentions 'halal' and '*tayyib*' when discussing food. In this context, 'halal' refers to the intrinsic nature of an item, while '*tayyib*' pertains to the processes involved in its preparation and handling (Alzeer *et al.*, 2018).

For example, while fish is inherently halal, the conditions under which it is raised determine whether it meets the *tayyib* standard. Fish raised in contaminated waters would not be considered *tayyib*, even though it is naturally halal. Conversely, if an inherently non-halal item, such as pork, is produced in a *tayyib* (wholesome) environment, it remains non-halal due to its intrinsic nature. Therefore, when determining the halal status of any ingredient, it is essential to consider its inherent nature and process. *tayyib* ensures that, upon consumption, the individual feels comfortable, which is best achieved when the production process aligns with halal lifestyle principles. This results in healthy food produced in a clean and hygienic environment.

To verify the HPL, it is essential to evaluate each ingredient from two perspectives: its halal nature and the *tayyib* nature of the process. Ingredients composed of single molecular components, which have a significant potential to influence health status, require special consideration. These ingredients, often used as flavourings, stabilisers, emulsifiers, or nutritional enhancers, must be rigorously assessed for their safety and compliance with halal and *tayyib* standards.

For instance, vitamins, minerals, hormones, ions, and metal chelators are beneficial only when used within their effective doses (Alzeer *et al.*, 2021). Overdosing on these substances can lead to toxicity (Zimmermann *et al.*, 2019). Therefore, when approving such ingredients for the HPL, it is necessary to include their toxic doses or indicate their potential toxicity if used beyond the tolerable dose. This ensures compliance with the *tayyib* principle, where safety is paramount (Bast & Semen, 2024).

For example, acetic acid can be produced by aerobic fermentation of fruits, such as apples, to generate apple vinegar, which contains approximately 5% acetic acid (Alzeer & Abou Hadeed, 2016). In this case, the acetic acid is inherently halal. Because it is produced from natural ingredients through a *tayyib* process, the product is Halal-Tayyib and can be added to the HPL. Conversely, acetic acid can also be produced chemically by oxidising ethanol to create pure acetic acid as a single molecular component. Although the acetic acid ingredient is halal and the process is *tayyib*, this could lead to misunderstandings, such as the incorrect assumption that pure acetic acid can be consumed directly because it is deemed Halal-Tayyib. Apple cider vinegar is obtained through the natural fermentation of apples, preserving beneficial nutrients, enzymes and probiotics that promote digestive health and overall well-being. Pure acetic acid, on the other hand, which is often chemically produced, does not have these additional health benefits and is mainly used in industry or food processing. Although both substances have the same acid, the natural fermentation process in apple cider vinegar provides additional health benefits that chemically produced acetic acid does not.

To avoid such misconceptions, it is important to highlight that products produced and used as single molecules can be toxic if used beyond the tolerable dose (Pognan *et al.*, 2023). Therefore, critical ingredients produced from natural products must be approved through a questionnaire. For single molecular ingredients, approval should include a questionnaire and a note on the tolerable dose to ensure their safe use. Therefore, to comprehensively address all aspects of halal production, the list

should be referred to as the "Halal-Tayyib Positive List". This designation ensures that the ingredients' inherent nature and processes are thoroughly evaluated, upholding the highest halal compliance and wholesomeness standards.

4. Result & discussion

The halal certification process has evolved significantly due to the growing demand for halal products. Initially, focusing on ingredients derived from animals or mixed with alcohol was sufficient (Talib *et al.*, 2016). However, as food production became more complex, it became evident that many additives, even in small quantities, require detailed inspection. To address these challenges, halal certification bodies have increasingly relied on qualified professionals from various fields, such as food science, chemistry, and pharmacy, to evaluate ingredients and processes thoroughly. This shift has ensured a more comprehensive and accurate assessment of product compliance. The concept of HPL has been introduced to streamline the certification process (Rashid & Bojei, 2019). The HPL aims to classify ingredients as inherently halal, eliminating the need for extensive traceability and investigation. However, the HPL raises questions regarding its applicability to chemically synthesised single-molecule compounds, which may pose toxicity risks. Since toxicity is dose-dependent, new classifications are needed to ensure the safe and effective determination of ingredient status.

Given the current HPL's limitations in addressing the complexities of modern food production, we propose replacing it with a Halal-Tayyib Positive List (HTPL). This new list would confirm the halal nature of ingredients and ensure that the processes involved meet *tayyib* (wholesome and pure) standards. This dual verification ensures that ingredients are safe, ethically sourced, and processed in a manner that aligns with the holistic principles of Halal-Tayyib.

We propose classifying ingredients into non-critical, critical, and highly critical to enhance the certification process and ensure comprehensive compliance with halal and *tayyib* principles. This classification will facilitate the inclusion of ingredients in the HTPL, ensuring they meet both permissibility and wholesomeness standards (Table 1).

4.1 Non-critical ingredients

Inherently halal ingredients, such as essential plant-based items like fruits and vegetables, require minimal scrutiny and can be easily included in the HTPL without extensive verification.

4.2 Critical ingredients

The HTPL finds it most challenging to approve such ingredients. Therefore, it is important to classify these critical ingredients further into subcategories.

4.2.1 Subcategory 1: processed from natural sources

Ingredients in this subcategory are mixtures or compounds derived from natural sources. Examples include plant extracts or naturally derived chemicals. To ensure these ingredients comply with *tayyib* principles, a detailed questionnaire assessing the production process is required. This verification process confirms that no non-halal substances are involved during processing, ensuring the integrity of the HTP.

Table 1: Most important Halal-Tayyib Positive List categories with detailed natural ingredient examples:

| Category | Examples | Description |
|--|---|--|
| Natural Ingredients: These ingredients are derived from natural sources and are generally considered halal (Mohd Noor <i>et al.</i> , 2023) | Fruits: | Apples, bananas, oranges, grapes, berries, melons, dates, figs |
| | Vegetables: | Potatoes, tomatoes, onions, carrots, lettuce, spinach, broccoli, mushrooms |
| | Grains: | Wheat (for flour, bread, pasta), rice, barley, oats, corn |
| | Herbs and Spices: | Basil, oregano, mint, parsley, thyme, cumin, cinnamon, cloves, turmeric, ginger, garlic, chilli peppers |
| | Oils: | Olive oil, coconut oil, sunflower oil, canola oil, peanut oil (depending on regional interpretations) |
| | Nuts and Seeds: | Almonds, walnuts, cashews, pistachios, peanuts (depending on regional interpretations), flaxseeds, chia seeds |
| | Sweeteners: | Honey, maple syrup (depending on production methods) |
| | Fats and Dairy | Milk, yoghurt, cheese, butter, ghee (If the flavours, additives and enzymes used in the preparation are natural and are not derived from animals) |
| Food Additives: These additives enhance the taste, texture, or shelf life of food. They are pre-approved on the HPL based on their source, production process, and potential contaminants (Nazaruddin <i>et al.</i> , 2023). | Acidity Regulators: | Citric acid (E330), malic acid (E296), tartaric acid (E334): Control acidity for taste, preservation, and functionality. Phosphates (e.g., disodium phosphate, E339): Maintain a desired pH level for various functionalities like texture and microbial control. |
| | Emulsifiers: | Lecithin (E322), mono- and diglycerides (E471), polysorbates (E433): Help disperse and stabilise ingredients that would not usually mix (e.g., oil and water). |
| | Sweeteners: | Sucrose (table sugar), fructose, high-fructose corn syrup (HFCS: limitations may apply), stevia glycosides (E960): Enhance sweetness without adding significant calories (in some cases). |
| | Thickeners: | Agar-agar (E406), xanthan gum (E415), carrageenan (E407): Increase viscosity and improve texture in various food products. |
| | Antioxidants: | Ascorbic acid (vitamin C, E300), tocopherols (vitamin E), BHA (E320), BHT (E321): Prevent spoilage caused by oxidation (rancidity). |
| | Colourings: | Natural colours (e.g., paprika extract, turmeric), caramel (E150), and specific artificial colours (restrictions may apply based on regional interpretations): Enhance the visual appeal of food products. |
| | Flavorings: | Natural flavours are derived from plants, spices, or animal sources (restrictions may apply), and some artificial flavours (restrictions may apply) enhance or modify the taste profile. |
| | Leavening Agents: | Baking powder and baking soda (sodium bicarbonate, E500) raise dough by releasing carbon dioxide. |
| Sequestrants: | EDTA (E386): Bind metal ions affecting colour, flavour, or stability. | |

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| <p>Processing Aids: These substances are used during food processing but are not typically present in the final product. The HPL ensures they are derived from halal sources and do not introduce forbidden substances (Maqsood-ul-Haque & Veny, 2023).</p> | Enzymes: | <p>Amylase (breaks down starch into sugars): Used in bread making, brewing, and syrups production.</p> <p>Protease (breaks down proteins): Used in meat tenderisation and cheesemaking clarification.</p> <p>Lipase (breaks down fats): Used in cheesemaking, dairy product flavour development, and oil modification.</p> | <p>Those ingredients are classified as critical and belong to subcategory 1. A questionnaire describing the production process is required to be approved and added to the Halal-Tayyib Positive List.</p> |
| | Filtering Agents: | <p>Diatomaceous earth (DE) Removes solids from liquids through filtration.</p> <p>Perlite is a volcanic glass used for filtration and is often used in clarifying beverages.</p> <p>Bentonite clay: Used for clarification and stabilisation of beverages like fruit juices by absorbing unwanted proteins and haze-forming particles.</p> | |
| | Fermentation Cultures: | <p>Yeast (<i>Saccharomyces cerevisiae</i>): Converts sugars into alcohol and carbon dioxide in bread-making and yoghurt fermentation.</p> <p>Lactic acid bacteria: Convert sugars into lactic acid, used in yoghurt and cheese production and for preserving vegetables (sauerkraut, kimchi).</p> | |
| | Bleaching Clays: | <p>Activated alumina: Removes unwanted colours and impurities from oils and fats.</p> <p>Activated carbon (wood): A highly adsorbent material used to decolourise, purify, and remove off-flavours and odours from various food products.</p> | |
| | Antifoaming Agents: | <p>Silicone-based defoamers: Reduce and prevent foam formation during processing, often used in beverages and syrups.</p> <p>Vegetable oils: Certain vegetable oils can act as natural defoamers during food processing.</p> | |
| <p>Packaging Materials: These materials come into contact with food but are not consumed. The HPL focuses on ensuring they are non-reactive and do not compromise the halal integrity of the food (Bujang & Bakar, 2023).</p> | Metals: | <p>Tinplate steel: Often used for cans, the HPL ensures the tin coating complies with halal principles.</p> <p>Aluminium foil: Used for wrapping and sealing food products; the HPL considers potential contaminants introduced during processing. Stearate is an ingredient that must originate from a halal source to be considered suitable.</p> | <p>Packaging materials interface with food but are not meant for consumption. Critical ingredients are classified as critical ingredients and belong to subcategory 1. A questionnaire describing the production process is required to be approved and added to the Halal-Tayyib Positive List.</p> |
| | Glass: | <p>Bottles and jars: Glass is a widely used, inert material for storing food; the HPL focuses on ensuring that the glass composition does not contain any non-halal substances.</p> | |
| | Plastics: | <p>Polyethylene terephthalate (PET): Commonly used for bottles and food trays, the HPL considers the source material and potential for leaching harmful chemicals.</p> <p>High-density polyethene (HDPE): This material is used for rigid containers and bottles. The HPL ensures compliance with halal principles for its production process.</p> <p>Polypropylene (PP): Often used for films and containers, the HPL focuses on the absence of forbidden substances in the source material and additives. Stearate is an ingredient that must originate from a halal source to be considered suitable.</p> | |

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| Paper and Paperboard: | Cardboard boxes are used for secondary packaging; the HPL considers potential contaminants introduced during production (e.g., glues and inks). Parchment paper is greaseproof paper used for wrapping food; the HPL ensures that the source material and coatings are halal-compliant. |
| Biodegradable Materials: | Cellulose films: Derived from plant materials and used for food wrapping, the HPL considers the source and any processing aids used to ensure halal compliance. Polylactic acid (PLA) is a bioplastic derived from corn starch used for containers and cutlery; the HPL focuses on the production process and the potential for non-halal contaminants. |

Note: This table provides a general overview. The specific ingredients and materials in the HTPL may vary depending on the country or certification body. It is crucial to refer to the specific HTPL used for certification and adhere to Halal-Tayyib principles.

4.2.2 Subcategory 2: laboratory-produced single components

This subcategory includes single-molecule ingredients synthesised in the lab, such as amino acids, vitamins, carbohydrates, fatty acids, minerals, ions, salts, additives, emulsifiers, stabilisers, and flavours. Inclusion in the HTPL requires a thorough approval process, starting with a comprehensive questionnaire that evaluates the ingredient's sourcing and processing methods to ensure compliance with halal standards (Sari et al., 2021). Additionally, it is recommended to provide a questionnaire with detailed information on the toxic dose or highlight the safety margin. This step ensures that these ingredients are used within tolerable doses, safeguarding consumer health and maintaining the integrity of the Halal-Tayyib principles. By incorporating this detailed verification, the HTPL confirms the permissibility of ingredients and their safety and wholesomeness for consumption.

4.3 Highly critical ingredients

Highly critical ingredients come from animals or involve complex processing, which puts them at high risk of being non-halal. These ingredients require strict certification to verify their sources and processes, ensuring animals are sourced and slaughtered according to halal guidelines (Masudin, 2023). This process includes detailed questionnaires, on-site inspections, and audits by halal certification bodies. Therefore, adding highly critical ingredients to the HTPL is not allowed.

This proposed classification and verification framework ensures a comprehensive evaluation of the ingredients and their production processes, maintaining high safety and quality standards. The shift to an HTPL reflects a thorough and integrated methodology that is better suited to the complexities of modern food production and consumer safety requirements. This approach aligns with the principles of halal and tayyib, assuring that products are both permissible and wholesome (Rahman et al., 2017).

To effectively implement the HTPL, it is essential to establish a multidisciplinary expert panel comprising Islamic scholars, food scientists, chemists, pharmacists, and industry experts. This panel will oversee the development and maintenance of the HTPL, ensuring it reflects the latest scientific discoveries

and industry practices.

The HTPL will be integrated into halal certification processes by developing standardised auditing protocols covering every production stage, from sourcing to final packaging. Halal auditors will be trained to use the HTPL effectively, ensuring a streamlined certification process that saves time and resources while maintaining consistency and trust within the halal food industry. A digital platform will facilitate easy access to the HTPL, promote transparency, and enable continuous updates (Shari, 2022). Communication among scholars, scientists, manufacturers, and consumers will be encouraged to improve the HTPL and auditing practices continually. Recognising its limitations, comprehensive audits will also address other critical aspects of halal compliance, such as hygiene practices and avoiding cross-contamination (Talib et al., 2015). Establishing the HTPL as an integral component within a comprehensive halal certification framework ensures that products meet stringent halal and tayyib standards, benefiting manufacturers, consumers, and the broader halal industry.

5. Conclusions

The increasing complexity of food production poses challenges to traditional halal certification methods. Although the Halal Positive List (HPL) facilitates the certification process by providing a pre-approved list of ingredients, it is inadequate when addressing safety concerns, especially for single-molecule ingredients. This study argues for developing a Halal-Tayyib Positive List (HTPL) that considers halal acceptability and tayyib wholesomeness and provides a more comprehensive framework for certification. The multi-tiered classification system, utilising questionnaires, ensures comprehensive verification of critical ingredients. This approach ensures ingredient safety, ethical sourcing, and consumer trust, requiring a multidisciplinary expert panel and standardised auditing protocols for successful implementation. Future research could explore the economic impact of HTPL on the halal food industry and analyse the effectiveness of HTPL in different regions with varying halal certification practices. Implementing the HTPL can significantly improve halal certification processes, ensuring robust compliance with halal and tayyib principles for the benefit of manufacturers, consumers, and the halal industry.

References

- Alzeer, J., Abou Hadeed, K. (2016). Ethanol and its Halal Status in Food Industries. *Trends in Food Science & Technology*, 58:14-20. Doi: 10.1016/j.tifs.2016.10.018
- Alzeer, J., Rieder, U., Abou Hadeed, K. (2018). Rational and Practical Aspects of Halal and tayyib in the Context of Food Safety. *Trends Food Sci Tech*, 71:264-267. Doi: 10.1016/j.tifs.2017.10.020.
- Alzeer, J., Abou Hadeed, K. (2020). Halal Certification of Food, Nutraceuticals, and Pharmaceuticals in the Arab World. In: Laher I. (eds) *Handbook of Healthcare in the Arab World*. Springer, Cham. Doi: 10.1007/978-3-319-74365-3_36-1.
- Alzeer, J., Abou Hadeed, K., Basar, H., Al-Razem, F., Abdel-Wahhab, M., Alhamdan, Y. (2021). Cannabis and its Permissibility Status. *Cannabis and Cannabinoid Research*, 6(6):451-456. Doi: 10.1089/can.2020.0017
- Alzeer, J. (2021). Permissible Medicine and Rationalisation of Halal Pharma. *Halalsphere*, 1:43-52. Doi: 10.31436/hs.v1i1.18
- Annabi, C. and Ibadapo-Obe, O. (2017). Halal Certification Organisations in the United Kingdom. *Journal of Islamic Marketing*, 8(1): 107-126. <https://doi.org/10.1108/jima-06-2015-0045>
- Bast, A., Semen, K.O. (2024). Exploring Health and Toxicity in Food Choices: 10 Examples Navigating The Grey Area. *Front. Nutr.* 10:1301757. doi: 10.3389/fnut.2023.1301757
- Bujang, A., Bakar, S. (2023). Chapter 14 - Halal Packaging: Halal Control Point in Manufacturing of Packaging Materials and Halal Labelling, Editor(s): Nina Naquiah Ahmad Nizar, Siti Aimi Sarah Zainal Abidin, Aishah Bujang, *Innovation of Food Products in Halal Supply Chain Worldwide*, Academic Press, Pages 161-175, <https://doi.org/10.1016/B978-0-323-91662-2.00001-6>.
- Dzikrulloh, D., Koib, A. (2021). Implementation of the Halal Value Chain in Business In Islamic Boarding Schools. *Dinar Jurnal Ekonomi Dan Keuangan Islam*, 7(2):1-13. Doi: 10.21107/dinar.v7i2.11250
- Giyanti, I., Indrasari, A., Sutopo, W., Liquiddanu, E. (2020). Halal Standard Implementation in Food Manufacturing SMEs: its Drivers and Impact on Performance. *Journal of Islamic Marketing*, 12(8):1577-1602. Doi: 10.1108/jima-11-2019-024
- Maqsood-ul-Haque, S., Veny, H. (2023). Food Processing Aids: Lubricants for Halal Manufacturing Facilities. In: *Innovation of food products in halal supply chain worldwide*. Academic, London, pp 149–159. <https://doi.org/10.1016/B978-0-323-91662-2.00019-3>
- Masudin, I. (2023). Assessment and Risk Mitigation on Halal Meat Supply Chain Using Fuzzy Best-Worst Method (Bwm) and Risk Mitigation Number (Ren). *Journal of Islamic Marketing*, 15(3):842–865. Doi: 10.1108/jima-08-2022-0240
- Mohd Noor, N., Azmi, N. A. N., Hanifah, N. A., & Zamarudin, Z. (2023). Navigating the Halal Food Ingredients Industry: Exploring the Present Landscape. *Halalsphere*, 3(2):32–43. Doi: 10.31436/hs.v3i2.80.
- Nazaruddin, L.O., Gyenge, B., Fekete-Farkas, M., Lakner, Z. (2023). The Future Direction of Halal Food Additive and Ingredient Research in Economics and Business: A Bibliometric Analysis. *Sustainability* 15, 5680. <https://doi.org/10.3390/su15075680>
- Pognan, F., Beilmann, M., Boonen, H.C.M, Czich, A., Dear, G., Hewitt, P., Mow, T., Oinen, T., Roth, A., Steger-Hartmann, T., Valentin, J.P., Goethem, F.V., Weaver, R.J. (2023). The Evolving Role of Investigative Toxicology in the Pharmaceutical Industry. *Nat Rev Drug Discov* 22:317–335. Doi: 10.1038/s41573-022-00633-x
- Rahman, A., Singhry, H., Hanafiah, M., Abdul, M. (2017). Influence of Perceived Benefits and Traceability System on Food Manufacturers' Readiness for Halal Assurance System Implementation. *Food Control*, 73:1318-1326. Doi: 10.1016/j.foodcont.2016.10.058
- Rashid, N., Bojei, J. (2019). The Relationship Between Halal Traceability System Adoption and Environmental Factors on Halal Food Supply Chain Integrity in Malaysia. *Journal of Islamic Marketing*, 11(1):117-142. Doi: 10.1108/jima-01-2018-0016
- Sari, D., Jaswir, I., Daud, M. (2021). Implementation and Impact of Halal Food Standard: An Empirical Study in Malaysia. *Journal of Islamic Monetary Economics and Finance*, 7(3). Doi: 10.21098/Jim.v7i3.1302
- Shari, S. (2022). Transparency and Halal Procurement in the Hotel Industry. Doi: 10.15405/epms.2022.10.2
- Talib, M., Chin, T., Fischer, J. (2017). Linking Halal Food Certification and Business Performance. *British Food Journal*, 119(7):1606-1618. Doi: 10.1108/bfj-01-2017-0019
- Talib, M., Hamid, A., Chin, T. (2015). Motivations and Limitations in Implementing Halal Food Certification: A Pareto Analysis. *British Food Journal*, 117(11):2664-2705. Doi: 10.1108/bfj-02-2015-0055
- Talib, M., Sawari, S., Hamid, A., Chin, T. (2016). Emerging Halal Food Market: An Institutional Theory of Halal Certificate Implementation. *Management Research Review*, 39(9):987-997. Doi: 10.1108/mrr-06-2015-0147
- Wilkins, S., Butt, M., Shams, F., Pérez, A. (2019). The Acceptance of Halal Food in Non-Muslim Countries. *Journal of Islamic Marketing*, 10(4):1308-1331. Doi: 10.1108/jima-11-2017-0132
- Zailani, S., Iranmanesh, M., Aziz, A., Kanapathy, K. (2017). Halal Logistics Opportunities and Challenges. *Journal of Islamic Marketing*, 8(1):127-139. Doi: 10.1108/jima-04-2015-0028
- Zimmermann, L., Dierkes, G., Ternes, T., Völker, C., Wagner, M. (2019). Benchmarking the In Vitro Toxicity and Chemical Composition of Plastic Consumer Products. *Environmental Science & Technology*, 53(19):11467-11477. Doi: 10.1021/acs.est.9b02293