

THEORETICAL CONCEPT OF ISTIHALAH IN GELATINE APPLICATION: A REVIEW

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ABSTRACT

This paper will appraise the literature regarding Istihalah theory in gelatine application according to Islamic perspectives. With the development of food technology, variety of food additives have been produced and become issues due to the non-halal raw material being used. One of the examples is porcine gelatine that is come from the non halal pig bones, skin, tendon, connective tissues and cartilages. The Istihalah processes of gelatine were clarified and categorized as istihalah sahihah (complete transformation) or istihalah fasidah (imperfect transformation) based on views from the fiqh scholars and scientific study. Gelatine as a food additives that apply with Istihalah process were discussed theoretically and scientifically to unravel these issues. The study methods adopt qualitative analysis by referring the primary evidence from al-Quran, al-Sunnah, al-Ijma', al-Qiyas and also secondary evidence from credible sources such as fiqh books, food science books, websites and other related resources.

Keywords: Istihalah; fiqh scholar; Islamic perspective; Istihalah Sahihah; Istihalah Fasidah

INTRODUCTION

It is estimated that the World Halal Food Markets sizes increasing 2% each year (Sungkar, Irfan and Hashim, 2019). However, there are certain issues arise and being discussed among Islamic Jurisprudence when deal with food or food additive where the origin is non-halal and become halal when undergoes certain process that is called Istihalah. Istihalah in an Islamic principle concerning transformation or a conversion of the original condition into new condition (Qal'ahji, 1996). Professor Shaykh Wahbah Al-Zuhayli (2017), an Islamic Jurisprudence signifies Istihalah as a change of impurity matter into a pure matter in every aspect physical, chemical and biological properties.

One of the prohibited origins that applied in Istihalah is khinzir. Their bones, fats and skin produced a by-product named gelatine and being used worldwide. For example in Europe, about 80% of edible gelatine is produced from pig skin (Boran and Regenstein, 2010). According to transparency market research (Sheela, 2013), the global demand of gelatine for food and non-food applications has reach 348.9 kilo tons in 2011 and will be expected to reach 450.7 kilo tons in 2018 where 40% of the overall production of gelatine in 2011 was utilized from pig skin.

Gelatine is an additive that is capable to change the physical, biological, chemical, and sensory properties of the food product. With the high food technology nowadays, varieties of modern and fast food being invented with addition of food additives. Food additives have no nutritional value when it is added to food. Research shows that gelatine had been used since 15th century in making food product, pharmaceutical and cosmetic (Mariod and Adam, 2013; Abd Elgadir, Mirghani, and Adam, 2013; Karim and Bhat, 2009). Gelatine is a protein product originally derived from the partial hydrolysis of collagen obtained from skin (hides), bones, and connective tissues of land animals, usually mammals, as well as of fish and chickens.

Islam prohibited Muslims to consume any non-halal (haram) or doubtful (syubhah) food. Additionally, using haram or doubtful material as food additive or adulterant in food and pharmaceuticals products is also forbidden. Therefore, this paper will review the theoretical concept of fiqh Istihalah for gelatine. The view from Islamic jurisprudence and contemporary scholar regarding fiqh Istihalah are also discussed and from the description through modern science research and Islamic perspectives. Through this review and explanation, researcher hopes that the Muslim people, consumers and Food Industry are clear about porcine gelatine status either it is permissible or impermissible.

DEFINITION OF ISTIHALAH

According to Lisan ul Arab ابن منظور (Ibn Manzur, 1990), Istihalah is defined as a change. In a linguistic branch of knowledge, Istihalah come from the Arabic word ل و ح and derive from: استحالة *istihalat*, يستحل *yastahil*, استحال *istihal* which means changing. From the dictionary Islamic Legal Terminology, Mu‘jam Lughah al-Fuqaha’: Istihalah is stated as non-reversible transformation (Qal’ahji, 1996). It is must be aligned with Kashim et al. (2015) description where it is an irreversible conversion of one material to a new condition. The fiqh scholar al-Zuhayli (1997) defines Istihalah as an exchange of the origin material into other condition or state either the origin is pure or najis. (Hammad, 2004; Jamaludin, Mohammad Aizat and Wan Mohamed Radzi, 2009) give more details explanation by saying that the transformation covered the physical, chemical and biological properties including names. To simplify, Istihalah is a conversion process experienced by a substance with or without adding any foreign matter which result a formation of a new substance that change overall appearance physically, chemically and biologically.

THEORY AND APPLICATION OF ISTIHALAH IN GELATINE

Modern technology brings the innovation to a certain level where food innovations are not barred. With food technology, the product processing became faster, the shelf life became longer and consumer are more prefer with their texture and exterior. In order to last longer and look presentable,

some food additives from animal origin were used and this becomes an issue toward Muslim consumer. Nevertheless, Maqasid Shariah provides a complete framework for the Islamic Scholar in making ijtiḥad to current issues. Alike Istihalah, it is one of the solutions of maslahah (masalih mu'tabarah) in terms of necessities (daruriyyat), need (hajjiyyat) and luxuries (tahsiniyyat). Even the terms cannot be found in al-Quran, the theory can be identified through this verse in al-Quran:

وَإِنَّ لَكُمْ فِي الْأَنْعَامِ لَعِبْرَةً نُّسْقِيكُم مِّمَّا فِي بُطُونِهِ مِنْ بَيْنِ فَرْثٍ وَدَمٍ لَبْنَا خَالِصًا سَائِغًا لِلشَّرْبِ ۖ إِنَّ ۖ ٦٦

“And indeed, for you in grazing livestock is a lesson. We give you drink from what is in their bellies - between excretion and blood - pure milk, palatable to drinkers” (al-Quran; al-Nahl 16:66).

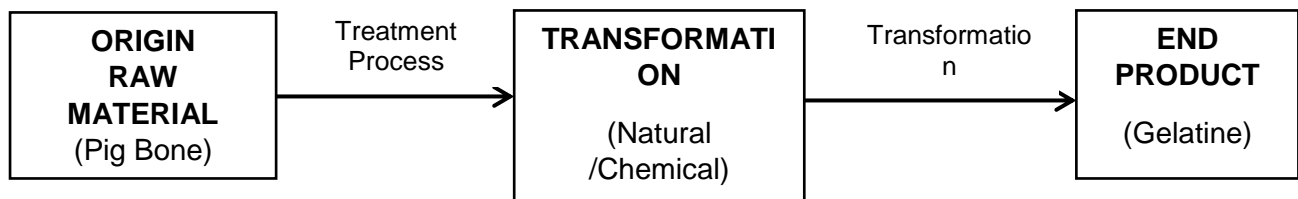
Following this, the origin of the milk is halalan-toyyiban (permissible, clean, harmless, healthy and nourishing food) even though it is from blood. Scientifically, blood is produced from blood plasma. It is become transparent when red blood cells are removed and make milk look white. The parable is given to designate how Istihalah work. In this situation, both Ibn Abbas and Fakhr al-Din al-Razi agreed that the milk produced from blood with adulteration of najis via the excretory system which is formed at the same place is halal.

Istihalah can be categorized into three types of transformation as in figure 1. The physical transformation involved changing in odour, taste and colour while chemical transformation is involved changing in chemical substances in the origin (raw materials). The transformation that involved both physical and chemical will result new substance or new end product (figure 2) and it is considered as complete transformations. The Istihalah practice happens with the existence of several parameters which is the origin substance, catalyst or transformation agent and end product.

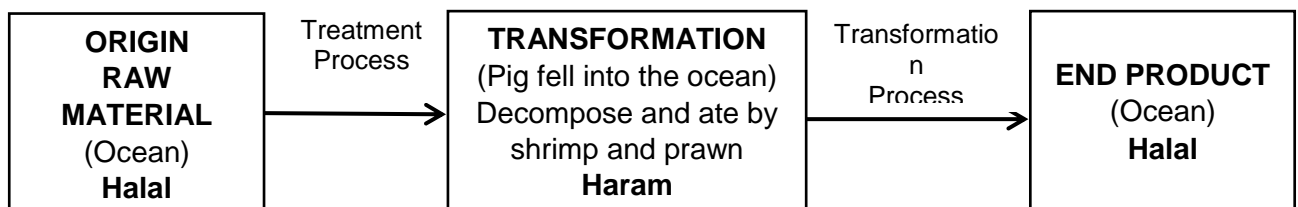
Figure 1: Category of Istihalah

Istihalah Transformation	Example
Physical	Tanning hides of animals for leather (pig skin are not included)
Chemical	Treatment and extraction of collagen from pig’s skin and bones to produce gelatine
Physical and Chemical	Fertilizer made from animal excrement including pig excrement

This Istihalah process can be seen in the gelatine production as shown in figure 2. The origin substance (pig bone) is derived from animal based will undergo a process either naturally or with addition of chemical (acid-base treatment) for a certain period before attain the end product (gelatine). However, if the source of origin is non-halal, will the gelatine became halal after undergo Istihalah process?

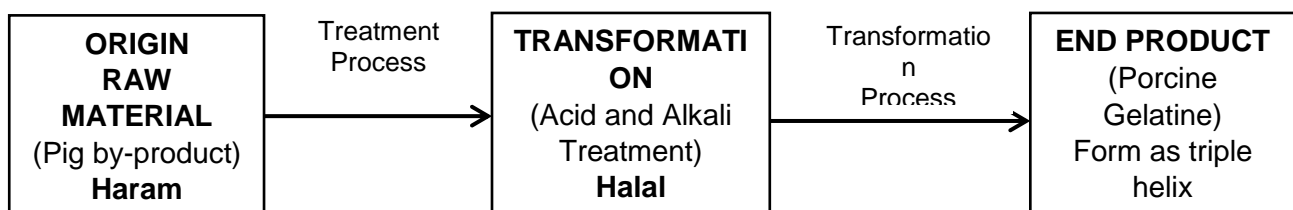
Figure 2: Istihalah Process for Gelatine Production


Based on the Usul al-fiqh or Islamic Jurisprudence, Istihalah can be classified into two classes named Istihalah Sahihah (complete transformation) and Istihalah Fasidah (incomplete transformation). In Istihalah Sahihah, every changes from the origin to the end product with the aid of chemical or undergo naturally, the end product is considered as halal. For example in figure 3, scientifically, a pig that fell into the ocean slowly will be ate by lyssianassid amphipods (a small shrimp) and pandalus platyceros (larger prawns) before the skeleton decomposed and became salt. Since the ocean is more than kur water, therefore the ocean will not become najis due to the carcass at the end of the Istihalah process. This whole process undergoes complete transformation and it is called as Istihalah Sahihah.

Figure 3: Istihalah Sahihah


In a scientific manner, gelatine is a protein polymer that comprises the mixture of heterogeneous high molecular weight proteins that involved a separation of tertiary, secondary and primary structure of natural collagens (figure 3). The destruction of hydrogen bonds through acid or alkaline treatment will results the loss of the triple-helix conformation (Gorgieva and Kokol 2011; Mariod and Adam 2013). However, the hydrogen bond breakage will not result in changing the helix protein structure and there are no changes in the amino acids sequence which responsible for chemical composition. Due to no changes occur to the porcine gelatine that is extracted from pig bones or skin, therefore this transformation is classified as “Istihalah Fasidah”.

Figure 3: Triple Helix Structure in Gelatine

Figure 4: Istihalah Fasidah


In the 9th Medical Fiqh Symposium, Dr. Hamed Jami had mentioned about the transformation criteria from Islam point of view. He said that the complete transformation is a complete conversion of the material nature. It means all the characteristics and properties must be converted. Hence, the end product or the transformed material must be dissimilar to the original material. The end product is a novel independent nature, characteristics with a novel name. In this situation, preponderance of the Islamic scholars agrees that halal gelatin is derived from halal (lawful) animals that undergo halal slaughter (zahiba) (Shah and Yusof, 2014). Nevertheless, Islamic scholars have a contradictory view on the halalness of the porcine gelatine that being used in food. This contradictory view will be discussed further.

ISLAMIC VIEWS REGARDING ISTIHALAH

The principle of Istihalah in food like gelatine that is derived from prohibited animal (pig) is quite controversial. There is Islamic Jurisprudence who claims those prohibited food is still permitted to be consumed in condition of darurah or Istihalah. In 1997, the European Council for Fatwas and Research, European Fiqh Council and 9th Medical and Fiqh Seminar Morocco consent the Istihalah application for khinzir in food, medicine and others. The Islamic scholars and jurist agree to accept the concept of Istihalah as a process of purification or cleaning of from unclean sources. For certain cases, the Istihalah application is accepted and vice versa which riven into two groups. The first group of scholars, the mazhab of Hanafi and Maliki with other contemporary scholars like Ibn al-'Arabi, Ibn al-Qayyim, al-Syawkani and Ibn Hazm al-Zahiri agreed with Ibn Taymiyyah as it solved uncertain things or new issues arises. According to Ibn Taymiyyah (2005), the origin of every substance is pure until it is clear the substance is najis. Thereupon is more appropriate to be applied in this research because it widened the scope of transformation process, in this case for gelatine based products. In addition, this opinion is relevant with the current development in food processing because

it involve various treatment (chemically and physically). The Hanafi, Maliki and Ibn Hazm schools of jurisprudence (mazhab) define Istihalah as a process that allows unclean substances to change into something clean either naturally or through the transformation agent, method or tools. As long as the original substance has changed its form the Istihalah process is adequate (Ibn Hazm 1347H).

However, the second group from Ibn ‘Abidin, the mazhab of Syafi’e and Hanbali, al-Nawawi, al-Sharbini and al-Qarafi stipulate that unclean things do not become clean by changing its nature. They accept only the natural transformation without any adulteration. Their view on Istihalah is more rigid where the Istihalah is only considered if the wine turn into vinegar naturally (al-Syarbini, 1994). Despite the fact they are limiting the application of Istihalah, they are supported by the verse in al-Quran (al-Maidah 5:3) where Allah says:

حُرِّمَتْ عَلَيْكُمْ أَلْمَيْتَةُ وَالِدَمُّ وَالْخِنْزِيرُ وَمَا أَهَلَ لِغَيْرِ اللَّهِ بِهِ وَالْمُنْخَنِفَةُ وَالْمَوْفُوْدَةُ وَالْمُتَرَدِّيَةُ وَالنَّطِيْحَةُ وَمَا أَكَلَ
 السَّبُعُ إِلَّا مَا ذَكَّيْتُمْ وَمَا ذُبِحَ عَلَى النُّصُبِ وَأَنْ تَسْتَقْسِمُوا بِالْأَزْمِ ذَلِكُمْ فِسْقٌ الْيَوْمَ بَيَّسَ الَّذِينَ كَفَرُوا مِنْ دِينِكُمْ فَلَا تَحْشَوْهُمْ
 وَأَحْشَوْنِ الْيَوْمَ أَكْمَلْتُ لَكُمْ دِينَكُمْ وَأَتَمَمْتُ عَلَيْكُمْ نِعْمَتِي وَرَضِيْتُ لَكُمْ الْإِسْلَامَ دِينًا فَمَنْ اضْطُرَّ فِي مَخْمَصَةٍ غَيْرِ
 مُتَجَانِفٍ لِإِثْمٍ فَإِنَّ اللَّهَ غَفُورٌ رَحِيمٌ ٣

“Prohibited to you are dead animals, blood, the flesh of swine, and that which has been dedicated to other than Allah, and [those animals] killed by strangling or by a violent blow or by a head-long fall or by the goring of horns, and those from which a wild animal has eaten, except what you [are able to] slaughter [before its death], and those which are sacrificed on stone altars, and [prohibited is] that you seek decision through divining arrows. That is grave disobedience. This day those who disbelieve have despaired of [defeating] your religion; so fear them not, but fear me. This day I have perfected for you your religion and completed My favour upon you and have approved for you Islam as religion. But whoever is forced by severe hunger with no inclination to sin - then indeed, Allah is Forgiving and Merciful”

From this verse, it is clear that pork (khinzir) is prohibited for human consumption and the permissible animal must be slaughtered according to syara’ (Islamic Law). The Quran gives the guidelines on how to slaughter according to Zabihah (method for killing an animal for the sole purpose of making its meat fit for human consumption). Since pork (khinzir) is haram, therefore, gelatine from pork (khinzir) is also unlawful. In mazhab Shafi’e, the three circumstances that applicable for Istihalah are wine that is converted to vinegar naturally, animal skin tanning for leather except dog and pigs and natural conversion like flies eggs in the food that hatch into larvae. In mazhab Hanbali, the conversion process that deal with burning, tanning or mixing is not considered as Istihalah. With advanced food analysis technology nowadays, the second group opinion is actually aligned with the theory and application of Istihalah in gelatine.

CONCLUSION

Istihalah theory is one of the instruments that help the Muslim people to face the challenge in identifying Halal Food in a contemporary world nowadays. The Muslim community were given the clarification by Usul al-fiqh not only in theoretical but also scientifically throughout the

transformation of gelatine. In a book of al-Mustasfa min ‘Ilm al-Usul, Al-Ghazali mentions that maslahah encompassed of benefits security and harm prevented which is closely related to maqasid al-shari’ah. With different points of view from Islamic Scholars and jurist, the Istihalah issue for gelatine becomes a maslahah. The mazhab Hanafi and Maliki with other contemporary scholars agreed that istihalah changes the state of najis into halal. In a lateral manner, science and technology had proved that porcine DNA still can be detected in gelatine which clarifies that the gelatine only transform chemically and not undergo complete transformation (Istihalah Fasidah). By taking into account both theoretical and analytical aspect, we can conclude that the Istihalah of gelatine strongly support the second view of Islamic Scholars from Ibn ‘Abidin, the mazhab of Syafi’e and Hambali, al-Nawawi, al-Sharbini and al-Qarafi.

REFERENCES

- Abd Elgadir, M., Mirghani, M. E. S., & Adam, A. (2013). Fish Gelatin and Its Applications In Selected Pharmaceutical Aspects As Alternative Source To Pork Gelatin. *Journal of Food, Agriculture and Environment*, 11(1), 73–79.
- al-Syarbini. (1994). *al-Iqna ‘fi Halli Alfaz Abi Syuja’*. Beirut: Dar al-Kutub al-‘Ilmiyyah.
- Gorgieva and Kokol. (2011). Biomaterials and Their Biocompatibility : Review and Perspectives. 1–36.
- Hammad, N. (2004). *Al-Mawad al-Muharramahwa al-Najisah fi al-Ghiza’ wa al-Dawa’ bayna al-Nazariyyahwa al-Tatbiq*. Syria: Dar al-Qalam.
- Jamaludin, Mohammad Aizat; Wan Mohamed Radzi, C. W. J. (2009). Teori Istihalah Menurut Perspektif Islam Dan Sains: Aplikasi Terhadap Beberapa Penghasilan Produk Makanan. *Jurnal Syariah*, 17(1), 169–194.
- Karim, A. A., & Bhat, R. (2009). Fish Gelatin: Properties, Challenges, and Prospects As An Alternative To Mammalian Gelatins. *Food Hydrocolloids*, 23(3), 563–576.
<https://doi.org/10.1016/j.foodhyd.2008.07.002>.
- Kashim, M. I. A. M., Majid, L. A., Adnan, A. H. M., Husni, A. B. M., Nasohah, Z., Samsudin, M. A., & Yahaya, M. Z. (2015). Principles Regarding the Use of Haram (Forbidden) Sources In Food Processing: A Critical Islamic Analysis. *Asian Social Science*, 11(22), 17–25.
<https://doi.org/10.5539/ass.v11n22p17>.
- Lin, L., Regenstein, J. M., Lv, S., Lu, J., & Jiang, S. (2017). An Overview Of Gelatin Derived From Aquatic Animals: Properties And Modification. *Trends in Food Science and Technology*, 68, 102–112. <https://doi.org/10.1016/j.tifs.2017.08.012>.
- Manzur, I. (1990). *Lisan al-‘Arab*. Beirut: Dar Sadir.
- Mariod, A. A., & Adam, H. F. (2013). Review: Gelatin, Source, Extraction and Industrial Applications. *Acta Scientiarum Polonorum, Technologia Alimentaria*, 12(2), 135–147.
- Qal’ahji, M. R. (1996). *Mu’jam Lughah al-Fuqaha.* Bayrut: Dar al-Nafa’is.
- Shah, H., & Yusof, F. (2014). Gelatin As An Ingredient In Food And Pharmaceutical Products: An islamic perspective. *Advances in Environmental Biology*, 8(3 SPEC. ISSUE), 774–780.
- Sungkar, Irfan and Hashim, D. (2019). The Global Halal Food Market and Updates on Global Halal Standards. The World Bank First EAP Regional Agribusiness Trade and Investment Conference “Agro-Enterprise without Borders,” 1–27.