

## The Relationship Between Non-Halal Animals and Pandemic Diseases According to the Shafie School of Islamic Law

Mohamed Faiz Asyraf Razali, Amalina Ahmad Tajudin, Ahmad Syukran Baharuddin, <sup>✉</sup> Ummu Hani Roslin  
Faculty of Shariah and Law, Universiti Sains Islam Malaysia, 71800 Nilai, Negeri Sembilan, Malaysia

### ABSTRACT

*This paper explores the connection between the consumption of certain animals and the emergence of pandemic diseases, particularly in the context of Islamic law, specifically the Shafie School. Humans have long been uncertain about which animals are suitable for daily consumption. Numerous studies have demonstrated a link between animal sources and the onset of various diseases. In recent years, several animal-origin diseases have become pandemics, such as SARS, MERS, COVID-19, and Ebola. These diseases are predominantly zoonotic, originating from animals. This research aims to investigate the relationship between pandemic diseases and animal consumption through the lens of Islamic law. The study adopts a qualitative methodology, relying on secondary data about the emergence of diseases related to animal consumption and literature on Halal principles. The findings indicate that many animals associated with disease spread are considered haram (prohibited) for consumption in Islam, including pigs, bats, and pangolins. Islamic dietary laws, or Halal principles, govern food choices based on the belief that everything consumed should be permissible according to the Quran and Hadith, as well as clean, permissible, and safe. Consequently, Islam has established specific conditions for animal consumption. The research also confirms the link between pandemic diseases and the consumption of prohibited animals, as defined by Halal principles. Halal principles offer a comprehensive framework that aligns Islamic dietary laws with contemporary human needs. The study recommends further research into the impact of Halal dietary principles on human food consumption and disease prevention.*

### KEYWORDS

*Pandemic Diseases, Animal Consumption, Food Safety, Halal Principles.*

### Article History

Received: October 16, 2023  
Revised: December 13, 2023  
Accepted: December 14, 2023  
Published: December 15, 2023

### ✉ Contact

Ahmad Syukran Baharuddin  
(Corresponding Author)  
[ahmadsyukran@usim.edu.my](mailto:ahmadsyukran@usim.edu.my)

### Citation

Mohamed Faiz Asyraf Razali, Amalina Ahmad Tajudin, Ahmad Syukran Baharuddin, Ummu Hani Roslin. 2023. The Relationship of Animals That Are Not Halal to Be Eaten, According to The Shafie School of Law, As a Cause of Pandemic Diseases. *Journal of Contemporary Islamic Law*. 8(2): 53-60.

### Copyright

© 2023 by the author(s)



This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.  
(<https://creativecommons.org/licenses/by/4.0/>)

## INTRODUCTION

In recent years, several pandemic diseases have emerged due to the consumption of animal-based foods. Most of these diseases are zoonotic, meaning they transfer between animals and humans. For instance, the 2019 Coronavirus disease (COVID-19) pandemic, which resulted in millions of fatalities worldwide (WHO, 2022), is a notable example. Research suggests that COVID-19 has been found in various animals, including bats, pangolins, cattle, and camels. According to Cyranoski (2020), COVID-19 likely originated from pangolins and bats, which are used as food and medicine in Wuhan, China. Today, it is crucial for people to make informed choices about the animals they consume for daily needs. However,

there seems to be confusion or a lack of knowledge in selecting suitable animals for consumption. Additionally, some individuals experiment with exotic foods without proper guidance, a practice with a long history.

Since the dawn of humanity, instinct has driven us to hunt animals for sustenance. Unlike our ancestors who lived in the Stone Age without technological aids, we now have various technologies to analyze and choose food sources more wisely. However, the vast biodiversity, with over eight million migratory species recorded globally (Camilo Mora, 2011), complicates this selection process. Various organizations have been established to oversee the selection of animal-based foods. International standards under the World Trade Organization, such as the Codex Alimentarius and the

International Standard Organization, provide guidelines in this regard. Islamic-based institutions, such as Jabatan Kemajuan Islam Malaysia and Majelis Ulama Indonesia, also play a significant role in monitoring Halal food selection. These Islamic bodies not only reference known animals but also assist in identifying previously unknown species (DOSM, 2019). This approach is based on the 'Halal principle,' a crucial aspect of Muslim life in making dietary choices.

Historically, Prophet Muhammad provided guidance to Muslims on choosing food based on Halal principles. The concept is simple: "All items free from alcohol, pork, and prohibited substances are permissible for consumption (Halim et al., 2014)." Therefore, a cross-disciplinary study linking pandemics and animal diseases could explore the relevance of Halal principles in the selection of animal-based foods.

## METHODOLOGY

This research primarily focuses on the role of Halal principles in law as they relate to the causes of pandemic diseases originating from animals. To gather information, a wealth of secondary data was

collected, including records of disease emergence linked to animal consumption and literature on Halal principles. The methodology employed was qualitative, emphasizing the identification of reliable data sources. The gathered data forms the core of a literature framework that interconnects the principles of Halal in food selection. This framework helps to elucidate the relationship between pandemic diseases and the consumption of animals prohibited by Halal principles. It also has potential applications in guiding future food production processes.

## RESULTS AND DISCUSSION

### 1. The Spread of Pandemic Diseases Due to Animals

Historically, numerous pandemic diseases have emerged due to unregulated human consumption of animals. Reddy and Saier (2020) highlight a causal link between animals and pandemic outbreaks. Infectious agents such as pathogenic protozoa, bacteria, and viruses, which reside in certain animals, can mutate and infect other hosts, including humans. For decades, the consumption of animals has been linked to various dangerous diseases (Reddy & Saier, 2020; Levitt, 2020). These diseases include:

No.	Name of Disease	Description of Disease	Causes of Disease
1	Severe acute respiratory syndrome (SARS)	Viral respiratory disease caused by the coronavirus associated with SARS (WHO, 2022) was first identified in late February 2003 during an outbreak in China and spread to 4 other countries (Zhao et al., 2003).	The virus was traced back to palm foxes, raccoon dogs, and Chinese foxes; these animals provide ample nutrition for the residents and humans working in the live animal market in the municipality of Shenzhen.
2	Middle East Respiratory Syndrome (MERS)	diseases caused by the Middle virus East Respiratory Syndrome Coronavirus (MERS-CoV). Most MERS patients develop a severe respiratory illness with symptoms of fever, cough, and shortness of breath. About 3 or 4 out of every ten patients reported with MERS have died. (NCIRD, 2022)	Based on a viral examination, it is thought to start at-bats and then be transferred to camels. Humans are most likely to be infected through intermediate camel hosts (Al-Osail & Al-Wazzah, 2017)
3	COVID-19	diseases caused by coronaviruses respiratory syndrome coronavirus 2 (SARS-CoV-2) was first identified amid an outbreak of respiratory disease cases in Wuhan City, Hubei Province, China (Cennimo, 2021).	The transfer of bats, pangolins and antlers to humans may have been aided by intermediate hosts who could behave as hosts for COVID (Adil et al., 2021). The emergence of this new virus strongly indicates mutations in coronaviruses such as SARS, which circulate in bats and other animal populations around the world (Lai et al., 2020).
4	Ebola	Ebola is a dengue fever disease caused by a viral infection of the Filoviridae family, genus Ebolavirus (Nichols, 2017).	Factors include population development, encroachment of forested areas, and direct involvement with animals, such as eating bush meat (CDC, 2021). Human infection may begin through direct contact with an animal's reservoir or its meat, which may occur during hunting and cooking wild meat. For example, various cases

			of human Ebola infection have been caused by contact with dead primates (Bonwitt et al., 2018).
5	Marburg Fever (MARV)	The disease is caused by the Marburg virus in the Filoviridae family, which can lead to dengue fever (Shifflett and Marzi, 2019). (Hunter & Rathish, 2022)	Several species of bats have been involved in serving as reservoir hosts for filoviruses, and there is compelling evidence that Egyptian fruit bats act as reservoirs for MARV.
6	Human Immunodeficiency Virus (HIV)	It is a virus that can cause AIDS if left untreated. HIV is not like other viruses. The human body cannot completely get rid of HIV, even with treatment. Therefore, if a person is infected with HIV, the HIV will live forever in the body (Yee, 2018).	It can occur through cross-transmission of immune-deficient virus species simian (SIV) of the common chimpanzee subspecies that infect humans. The virus is believed to be transmitted to humans by killing and eating chimpanzees; moreover, if blood is exposed to wounds and other wounds in people who hunt these animals, the virus can also be transmitted without swallowing (Sharp and Hahn, 2011).
7	Avian Influenza or Bird Flu (H5N1)	It is fatal to birds and can affect humans and animals through contact with carriers. According to the World Health Organization, H5N1 was first discovered in humans in 1997 (Normandi, 2018)	avian influenza virus is found in secretions from the nostrils, mouth, and eyes of infected birds and pigs and their fences (Nidom et al., 2010) (Song & Qin, 2020).
8	Swine Flu (H1N1)	a highly contagious respiratory disease in pigs caused by one of several swine influenza A viruses (Bronze, 2022).	Many strains of the influenza virus infect many species of animals, including humans, birds, dogs, cats, pigs, and even marine mammals (Li et al., 2015). The leading cause is said to be pigs.
9	Nipah virus	Nipah virus is an emerging zoonotic pathogen that causes severe febrile encephalitis, resulting in death in 40% to 75% of human cases	the disease has spread from bats to pigs and then to humans (Epstein et al., 2020)

Table 1: Diseases and their causes

Upon examining Table 1, it becomes evident from this study's observations that a significant correlation exists between pandemic diseases and animal origins. Notably, the analysis within the table reveals that the majority of pandemic disease causes are predominantly associated with a category of animals deemed prohibited in Islam. This observation underscores the pivotal role of Halal principles in guiding the selection of animals considered safe for human consumption.

2. The Criteria for Determining Edible Animals

According to the Shafie School of Islamic Law

In Islam, the Quran and Hadith are the primary sources of reference in using Halal principles. Based on Halal principles, which type of animal can be used as a food source can be ascertained. As a basic principle, all animals on this earth are Halal. Based on the Quran and Hadith, there is an explicit proviso stating the types of animals that can be eaten and those that are forbidden. If the proviso stating prohibited animals is examined, it can be ascertained that apart from the group of prohibited animals, there is a group allowed to be eaten that is not in the proviso directly (Iner and Baghdadi, 2021).

a. Categories of Animals Permissible for Consumption in Islam

Primarily, domesticated quadrupeds reared for food purposes, such as cattle, buffaloes, camels, sheep, goats, and horses, are considered Halal. The types of permissible farm animals may vary depending on regional cultural and climatic differences. These animals predominantly consume foliage and grass (Iqbal et al., 2019). Secondly, marine life; according to Halal principles in Islam, as interpreted by the Shafie school, all aquatic animals, including fish, shrimp, squid, and crabs, are permissible for consumption. This encompasses all forms of marine life, whether fresh, dried, or preserved. The definition of aquatic animals, as delineated in Al-Halal Wa-Al-Haram Fi Islam, 51 (Noordin, 2018), is restricted to creatures that exclusively inhabit and are dependent on aquatic environments. This is further supported by Quranic verse Surah Al-Maidah, verse 96, which declares sea game and its produce as lawful. Furthermore, al-Baghawi's interpretation (Noordin, 2018) reflects the Hanafi school's perspective, which considers only fish among aquatic creatures as Halal, excluding other forms of marine life. Additionally, it is important to note that amphibious animals, such as turtles and frogs, do not fall under this aquatic classification according to the principles. These species are classified into distinct categories due to their dual land and water habitats.

### b. b. Prohibited Animal Types in Islam

Islamic dietary laws, rooted in the Quran and Hadith, specify certain animals as forbidden for consumption. This is elaborated in Surah Al-Baqarah 2:172, which translates to: "O Believers, if you are true worshippers of Allah alone, eat without hesitation of the good and clean things wherewith We have provided you and be grateful to Allah." Additionally, Hadith narrated by Abu Hurayrah, reinforces this principle: "Allah the Almighty is Good and accepts only that which is good. [...] O you who believe! Eat of the lawful things that We have provided you." The hadith further illustrates the futility of prayers from one sustained by unlawful means. The Islamic texts provide clear guidelines on which animals are haram, or forbidden. These include pigs, lizards, snakes, rats, scorpions, and crows. Additionally, animals with certain predatory features are also prohibited: animals with fangs (such as tigers, dogs, monkeys, and cats), birds with talons (like eagles), carrion eaters (such as herons), poisonous creatures (including snakes), amphibians (like mud crabs), and animals dwelling in unclean environments (e.g., rats). Insects are generally forbidden, with the notable exception of grasshoppers. Therefore, permissible animals, according to these criteria, include grasshoppers and birds lacking talons, such as chickens, ducks, and geese. This comprehensive list provides clear guidelines for Muslims in adhering to Halal dietary laws (Yusoff et al., 2016).

### c. Permissible Animal Parts for Consumption

In Islamic dietary laws, nearly all parts of a permissible animal's body can be consumed. This includes the meat, stomach, brain, bones, and veins. The only explicitly forbidden part is the blood and any products derived from it. However, this exclusion does not extend to the liver and spleen, which are considered permissible for consumption.

### d. Animal Processing and Handling

#### i. Animal Welfare Conditions

Islam prioritizes the safety and well-being of its followers, mandating specific conditions for animal husbandry and preparation. Animals must be raised and sheltered in clean environments, free from prohibited substances like feces, alcohol, poisons, and pork products. Additionally, the use of hormones is forbidden if they are derived from prohibited sources or if their application alters the animal's natural state and the quality of its meat.

#### ii. The Preparation for Animals

In Islamic dietary practices, the slaughtering of animals is governed by strict guidelines to ensure both religious compliance and humane treatment of the animals. The person responsible for carrying out the

slaughter must be mentally competent, deeply religious (a Muslim or a person of the Book, known as Ahli Kitab), and capable of discerning right from wrong (mummayiz). The tool used in this process must be sharp and specifically intended for slaughtering, such as a knife, machete, or sword, while tools like teeth or nails are prohibited. The act of slaughtering itself involves precise cuts to the halkum (windpipe), mari' (esophagus), and wadjdan (jugular veins), with the Shafie school advocating for complete severance of these parts to ensure a swift and humane death of the animal. The ritual also encompasses the invocation of Allah's name, a practice deemed obligatory by the Hanafi and Maliki schools (especially when remembered, and forgivable if forgotten), while the Shafie school recommends it as a recommended, according to Benzertiha et al., 2018. This methodical approach underscores Islam's commitment to ethical and religiously guided practices in animal slaughter.

Studies indicate that Islamic slaughtering methods are humane and minimize pain to the animal. This method facilitates a smooth blood flow from the body, contrasting with stunning methods where animals often experience significant pain, and blood may remain in the body, affecting cleanliness (Schulze et al., 1978). An animal is deemed a carcass and thus haram if proper slaughtering procedures are not followed (Fatmawati, 2020). Carcasses include animals that die naturally or are killed by other animals, except in cases of lawful hunting or accidental death.

Halal principles, while stringent in many aspects of animal consumption, do allow for certain exceptions. Notably, all sea creatures that are found dead in the ocean are deemed Halal and permissible for consumption. This provision recognizes the unique nature of marine life and its food chain dynamics. Additionally, Halal laws permit the consumption of animals that are lawfully hunted, such as those caught using trained dogs.

### **The Risks Associated with Consuming Prohibited Animals**

Islamic dietary laws specify certain animals as forbidden for consumption, largely due to the high risk of poisonous and infectious diseases associated with these creatures.

#### a. Pigs

Beyond the previously mentioned diseases, pigs are known hosts for numerous parasites, viruses, and organisms harmful to humans. Notably, pigs can carry as many as 30 diseases and 40 different parasites (USDA, 2020). Mehmet (2020) indicates that medical research has identified pigs as carriers of infections like Salmonella, Enterococcus, Streptococcus, and Helicobacter, among others. Additionally, pigs contain toxins such as sutoxin and sialic acid N-

glycolylneuraminic acid (Neu5Gc), neither of which can be digested by humans.

**b. Carnivorous Animals and Birds of Prey**

Approximately 49% of carnivorous species, including minks, dogs, crows, and scavengers, are carriers of one or more pathogens. Studies suggest that these animals have compromised immune systems due to a loss of certain receptors and mutations in protein composition (Lennon, 2021). Jay (1996) highlights the risk of bacterial infections from these animals, including Pasteurellosis bacteria, hemolytic Streptococcus, Bacteroides, and Fusobacterium, commonly found in dogs. Furthermore, these animals are prone to fungal infections like ringworm, parasites such as Toxoplasma gondii and tapeworms, and diseases including Lyme disease, tularemia, Q fever, Rocky Mountain Spotted Fever, and Endemic Recurrent Fever.

**c. Carrion**

Carcasses often contain various infectious agents, antimicrobial agents, and a mixture of highly toxic organophosphorus and carbamate pesticides. Studies, such as those by Darcy et al. (2019) and Gray (2015), have shown that meat from carcasses poses a significant risk of contamination with harmful bacteria.

**d. Vermin**

This category includes animals that are pests, spread disease, damage agriculture, or are venomous, such as snakes, rats, cockroaches, and crows. These animals typically inhabit unclean environments like rubbish dumps. Risks from such animals include infections like Hantavirus Pulmonary Syndrome (HPS), Seoul virus, Hantavirus Fever with Renal Syndrome (HFRS), Murine typhus, and Rat-bite fever (Dowall et al., 2020).

**e. Amphibious Animals**

Animals capable of surviving in both terrestrial and aquatic environments, such as frogs, snakes, and turtles, are predominantly poisonous. This dual habitat capacity often correlates with an increased potential for toxicity.

**Halal Principles in Food Selection**

Today, numerous Halal certification bodies have emerged, applying these age-old principles to modern contexts. This adaptability demonstrates that Halal principles remain relevant and can serve as a foundational framework for public reference sources in various contexts (Smock, 2004). In terms of safety in preparing animal-based foods, Islamic law comprehensively addresses every stage of the food preparation process. This includes meticulous attention to how food is prepared, stored, and transported within factories. To be classified as Halal, the entire process must adhere to these stringent principles, ensuring compliance with Halal standards (Riaz and Chaudry, 2018). As of 2020, Halal institutions have been effectively monitoring and regulating companies producing Halal products (Zakaria and Abdullah, 2019). These institutions operate with strict ethical standards, ensuring that all aspects of food preparation in these companies align with Halal principles. This rigorous oversight facilitates the distinction of Halal products in the market (Batu and Regenstein, 2014).

In the current era, Halal products are increasingly chosen by both Muslim and non-Muslim consumers, largely due to their guaranteed cleanliness and safety. The certification process by Halal institutions makes it easier for consumers to identify and choose these products, offering them assurance in the consumption of animal-based foods.

**The Value of Health in Islam**

The adage "A healthy mind in a healthy body" resonates deeply with Islamic teachings, which have always placed immense value on health, second only to religious beliefs. Islam recognizes five essential elements for a fulfilling life: faith, life, lineage, property, and intellect. It is evident that safeguarding life, offspring, and intellect is inextricably linked to maintaining good health. Therefore, the preservation and protection of health are fundamental to the essence of divine law in Islam.

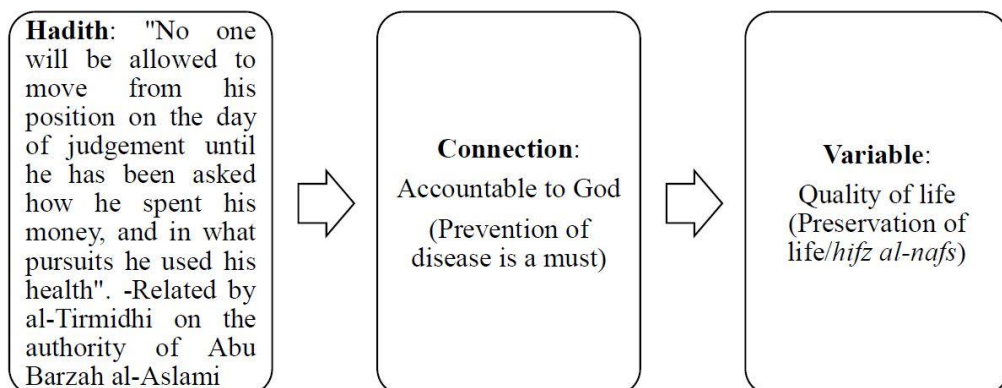


Figure 1: Quality of life variables (Ramzi et al., 2020)

Islam places significant emphasis on various aspects of human welfare, particularly concerning the safety and preservation of human life. Consequently, regulatory measures within Islamic law act as safeguards against potential health risks. Central to this is the Halal principle, which prioritizes the preservation of life, making the Halal status of a product an assurance of its safety and suitability for human consumption. As mentioned in Surah al-An'am, verse 145: Meaning: Say, O Prophet, "I do not find in what has been revealed to me anything forbidden to eat except carrion, running blood, swine—which is impure—or a sinful offering in the name of any other than Allah. But if someone is compelled by necessity—neither driven by desire nor exceeding immediate need—then surely your Lord is All-Forgiving, Most Merciful." This verse underscores the role of Halal as a crucial requirement for safeguarding lives. The Halal status of a product indicates its harmlessness and the safety of its ingredients. In Islam, the preservation of life is paramount, second only to the preservation of religion. Islam strictly opposes any actions that contravene the objectives of Shariah law. Human health is viewed as a critical responsibility, for which individuals are accountable to Allah on the Day of Judgment (Jamaluddin et al., 2021).

## CONCLUSION

In summary, the examination of the connection between animals that are sources of pandemic diseases and Halal principles reveals that such animals typically fall under the category of those prohibited in Islam. The ability to discern and choose appropriate animal sources for food is crucial. Historical evidence shows that many pandemic diseases have arisen due to diets based on animal consumption, exacerbated by a lack of effective control over human food consumption and a dearth of clear principles for public food selection. Islamic law, however, established Halal principles thousands of years ago, offering a solid reference for selecting animal-based foods. These principles are not mere restrictions; instead, they facilitate informed decision-making. Emphasizing safety, cleanliness, and authenticity, Halal principles effectively mitigate the risk of diseases. This demonstrates the rationality and relevance of Halal principles in selecting animal-based foods.

## REFERENCES

- Aaron Kandola, (2020), Causes of Coronavirus: Origins and How it Spreads, *MedicalNewsToday*.
- Adil, MT, Rahman, R., Whitelaw, D., Jain, V., Al-Ta'an, O., Rashid, F., ... & Jambulingam, P. (2021). SARS-CoV-2 and COVID-19 outbreaks, *Journal of Postgraduate Medicine*, 97 (1144), 110-116.
- Aisha M. Al-Osail and Marwan J. Al-Wazzah, (2017), The history and epidemiology of Middle East respiratory syndrome coronavirus, *Multidisciplinary Respiratory Medicine*, DOI 10.1186/s40248-017-0101-8.
- Annie Lennon, (2021), farming carnivores may encourage disease reservoirs, *MedicalNewsToday*.
- Batu, A., & Regenstein, J. M. (2014). Halal Food Certification Challenges And Their Implications For Muslim Societies Worldwide, *Electronic Turkish Studies*, 9(11).
- Benzertih, A., Kierończyk, B. A. R. T. O. S. Z., Rawski, M., Jozefiak, A., Mazurkiewicz, J., Jozefiak, D., ... & Świątkiewicz, S. Y. L. W. E. S. T. E. R. (2018). Cultural and practical aspects of Halal slaughtering in food production. *Medycyna Weterynaryjna*, 74(6).
- Bree Normandi, (2018), Bird Flu, *Healthline*, retrieved <https://www.healthline.com/health/avian-influenza>.
- David J Cennimo, (2021), What is COVID-19?, *Medscape*.
- Dowall, S. D., Graham, V. A., Aram, M., Findlay-Wilson, S., Salguero, F. J., Emery, K., & Hewson, R. (2020). Hantavirus infection in type I interferon receptor-deficient (A129) mice, *The Journal of general virology*, 101(10), 1047–1055. <https://doi.org/10.1099/jgv.0.001470>
- Epstein, J. H., Anthony, S. J., Islam, A., Kilpatrick, A. M., Ali Khan, S., Balkey, M. D., ... & Daszak, P. (2020). Nipah virus dynamics in bats and implications for spillover to humans. *Proceedings of the National Academy of Sciences*, 117(46), 29190-29201
- Epstein, J. H., Field, H. E., Luby, S., Pulliam, J. R., & Daszak, P. (2006). Nipah virus: impact, origins, and causes of emergence. *Current infectious disease reports*, 8(1), 59–65. <https://doi.org/10.1007/s11908-006-0036-2>
- Fatmawati, I. (2020, January). The Halalan Toyyibah concept in the Al-Qur'an perspective and Its application with food products in Indonesia. *International Halal Conference & Exhibition 2019 (IHCE)* (Vol. 1, No. 1, pp. 397-405).
- Hannah Nichols, (2017), Ebola: What you need to know, *Medical News Today*.
- Ilias Yee, (2018), Apakah Tanda-tanda dan Akibat-akibat Jangkitan Penyakit HIV dan AIDS, *DoctorOnCall*, retrieved <https://www.doctoroncall.com.my/hiv-aids#show>

- Iner, D., & Baghdadi, A. (2021). Halal food. *Handbook of Contemporary Islam and Muslim Lives*, 747-765.
- Iqbal, A., Qudoos, A., ÇETİNGÜL, İ. S., Shah, S. R. A., & Bayram, I. (2019). Retraction: Looking at Some Animal Feeds with Respect to Halal Concept. *Hayvan Bilimi ve Ürünleri Dergisi*, 2(1), 46-53.
- Jamaludin, MA, & Ramli, SNH (2021). Preservation of Life Along with Shariah Compliance Regarding Covid-19 Vaccine. *Journal of Halal Industry & Services*, 4 (1).
- Jay, M. T. (1996). Zoonotic diseases of carnivores and occupational safety issues for predator control employees. *Proceedings of the Vertebrate Pest Conference* (Vol. 17, No. 17).
- Lai, CC, Shih, TP, Ko, WC, Tang, HJ, & Hsueh, PR, (2020), Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and coronavirus-2019 disease (COVID-19): Outbreaks and challenges, *International Journal of Antimicrobial Agents*, 55 (3), 105924.
- McIntosh, K., & Perlman, S. (2015). Coronaviruses, including severe acute respiratory syndrome (SARS) and Middle Eastern respiratory syndrome (MERS). Principles and practice of infectious diseases Mandell, *Douglas, and Bennett*, 1928.
- Michael Stuart Bronze, (2022), H1N1 Influenza (Swine Flu), *Medscape*.
- National Center for Immunization and Respiratory Diseases (NCIRD), (accessed on 21 Jun, 2022), Middle East Respiratory Syndrome (MERS), *Division of Viral Diseases*, Centers for Disease Control and Prevention (CDC).
- Nicole Hunter; Balram Rathish, (2022), Marburg Fever, *StatPearls Publishing*, Treasure Island.
- Nidom, C. A., Takano, R., Yamada, S., Sakai-Tagawa, Y., Daulay, S., Aswadi, D., Suzuki, T., Suzuki, Y., Shinya, K., Iwatsuki-Horimoto, K., Muramoto, Y., & Kawaoka, Y. (2010). Influenza A (H5N1) viruses from pigs, Indonesia. *Emerging infectious diseases*, 16(10), 1515–1523. <https://doi.org/10.3201/eid1610.100508>
- Noordin, M.F., (2018) AL-KAFI #853: HUKUM MEMAKAN MAKANAN LAUT DAN PENYU, Pejabat Muft Wilayah Persekutuan, <https://muftiwp.gov.my/ms/artikel/al-kafi-li-al-fatawi/2688-al-kafi-853-hukum-memakan-makanan-laut-dan-penyu>
- Ogada, D., Richards, N., Behmke, S. (2019). What Makes Carrion Unsafe for Scavengers? Considerations for Appropriate Regulatory Policies and Sound Management Practices. In: Olea, P., Mateo-Tomás, P., Sánchez-Zapata, J. (eds) *Carrion Ecology and Management. Wildlife Research Monographs, Springer*, 2, Cham. [https://doi.org/10.1007/978-3-030-16501-7\\_9](https://doi.org/10.1007/978-3-030-16501-7_9)
- Reddy B, L, Saier M, H, Jr: The Causal Relationship Between Animal Eating and Virus Outbreaks. *Microbial Physiology* 2020; 30: 2-8. DOI: 10.1159/000511192
- Riaz, M. N., & Chaudry, M. M. (2018). Halal food laws and regulations. *Handbook of Halal food production, CRC Press*, 7-16.
- Richard Gray, (2015), Did our ancestors start cooking to make carrion safe to eat? Early humans may have roasted meat to avoid food poisoning, *Sciencetech mailonline*, accessed on 23 Jun 2022, retrieved at <https://www.dailymail.co.uk/sciencetech/article-3150797/Did-ancestors-start-cooking-make-carrion-safe-eat-Early-humans-used-fire-avoid-food-poisoning.html>
- Schulze, W., Schultze-Petzold, H., Hazem, A. S., & Gross, R. (1978). Versuche zur Objektivierung von Schmerz und Bewusstsein bei der konventionellen (Bolzenschussbetäubung) sowie religionsgesetzlichen ("Schächtschnitt") Schlachtung von Schaf und Kalb [Objectivization of pain and consciousness in the conventional (dart-gun anesthesia) as well as in ritual (kosher incision) slaughter of sheep and calf]. *DTW. Deutsche tierärztliche Wochenschrift*, 85(2), 62–66.
- Sharp PM, Hahn BH. The origins of HIV and the AIDS epidemic. *Cold Spring Harb Perspect Med*. 2011 Sep; 1 (1): a006841.
- Song W, Qin K. Influenza A (H9N2) viruses infecting humans: strains a potentially forgotten pandemic? *Public Health Zoonoses*. 2020 May; 67 (3): 203–12
- T. Muda T.S & Ahmad R., (2017). Halal dan Haram Makanan Menurut Imam Syafi'i. Retrieved from [https://eprints.um.edu.my/17724/1/HALAL\\_HARAM\\_MAKANAN\\_MENURUT\\_IMA\\_M\\_SYAFI.pdf](https://eprints.um.edu.my/17724/1/HALAL_HARAM_MAKANAN_MENURUT_IMA_M_SYAFI.pdf)
- Tom Levitt, (2020), Covid and farm animals: nine epidemics that changed the world, *Open philanthropy*.
- U.S. Department of Agriculture (USDA), (2020), Feral Swine- Risks to People and Domestic Animals, *Animal and Plant Health Inspection Service*.
- World Health Organization (WHO), (accessed on 21 Jun, 2022), Severe Acute Respiratory Syndrome (SARS), *Health Topic, World Health Organization*.
- Yardımcı, Mehmet, (2020), Impact Of Pork Consumption On Human Health, *International European Conference On Interdisciplinary Scientific Researches*

- Yusoff, Z. M., Mohd, H., Nawi, F. A. M., Daud, N., & Embong, R. (2016). Analysis on Methods of Determining Halal or Haram of Animals to Be Eaten According to Syeikh Abdul Malik Bin Abdullah in His Kitab al-Kifayah. *Contemporary Issues and Development in the Global Halal Industry*, Springer, Singapore, 301-311.
- Zhao, Z., Zhang, F., Xu, M., Huang, K., Zhong, W., Cai, W., & Hawkey, PM (2003). Description and clinical treatment of an early outbreak of severe acute respiratory syndrome (SARS) in Guangzhou, PR China. *Journal of Medical Microbiology*, 52 (8), 715-720.