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### Transmission of Viruses from Wild Animals to Humans, a Solution by Applying Syari'ah Rules and Regulations toward Animals

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#### Abstract

Humans are inevitably dependent on animals for their daily life. Animals contribute significantly to the human food cycle, yet simultaneously, it causes many diseases in the human body by transmitting hazardous viruses and pathogens to humans. The recent outbreak of COVID-19 is considered the outcome of taking the meat of some animals that transmitted the virus to human bodies. Since it is impossible to avoid meat entirely because of humans' food habits and meeting the demand for protein, a solution should be developed to save humans from getting affected by the transmitted virus and pathogens. This study mainly focuses on reducing the possibility of such an outbreak as COVID-19 due to some wild animals' consumption. Hence, this study proposes *Shari'ah* principles and legal maxims as a possible preventive measure. This study shows that many prohibited animals, according to Islam, are the reservoirs of viruses and pathogens. Therefore, sorting out suitable animals based on *Shari'ah* principles and legal maxims can save humans from getting affected by these transmitted viruses.

#### 1. Introduction

Due to the COVID-19 pandemic, almost all governments have enforced restricted movement orders. As a result, it affects every sector of a country, such as business, supply chain, education, tourism, religious activities etc. In human history, the pandemic is not something new that the whole world has experienced for the first time due to transmitted viruses from animals.

According to CDC, almost 75% of deadly viruses that caused significant outbreaks in human history were transmitted from animals, where wild animals solely contributed 71.3% of the total amounts. The WHO report also shows that diseases such as Marburg hemorrhagic fever, Lassa fever, Nipa virus, coronavirus families like SARS, mers, COVID-19, and many other viral diseases are linked to wildlife origins (WHO, 2021). (Aguirre, 2020) found that several zoonotic diseases are linked to the wet market where animals and wild animals are stored to be sold. All of this information implies that necessary precautions should be taken to process wild animals to prevent any emerging unknown viruses from wild animals. In support of that, WHO suggests suspending wildlife animals' business in the wet market to control the emerging viruses that may outbreak in the human population (UN News, 2021). (Aguirre *et al.*, 2021) also support the opinion of WHO of suspending wildlife animals' businesses from the wet market.

In this research, the author has shown how *Syari'ah* rules and regulations regarding using animals known as *Halal* animals could be essential to prevent the emergence of new viruses from wild animals. Interestingly, Islam has introduced the idea of *Halal* animals, which restricts using wild animals to some degree. The idea of *Halal* animal prescribed by *Syari'ah* has consisted of five main points, which are (*Khabeis*) Impure, Hunter with prey or talon, (*Jallah*) eating impure food maximumly, (*Darar*) causing harm, and dead. Applying these principles could prevent emerging outbreaks among society from wild animals. For example, applying this method results that animal being identified as a source of viruses are prohibited in *Syari'ah*, such as pigs which are considered as a source of Nipa virus, are prohibited being *Khabaies*/impure, and Bat as the source of Coronavirus family is prohibited because of hunting with prey or talon. This shows how the *Halal* method could be essential to prevent new emerging unknown viruses from wildlife.

#### 2. Literature review

##### 2.1 Value of the animal in human life

Undoubtedly, there is a strong relationship between humans and animals. Since time immemorial, human beings have depended on different types of animals to fulfil their needs, including food, medicine, transportation, etc. Humans use animals as a source of protein and vitamins that remain unchanged thus far. According to (Sharma *et al.* 2013), animal products are the most important source of essential

micronutrients, such as iron, zinc, selenium, and vitamin B12. (Zampa, 2020) notes that around 200 million animals are slaughtered worldwide every day for human use and consumption. The Food and Agriculture Organization (FAO) data of the United Nations also indicated how meat production is increasing rapidly worldwide. In consonance with this, the global meat production has long ago projected to jump by 300 metric tons in the year 2020 as against 233 metric tons in the year 2000 (Speedy, 2003). The National Research Council (US) Committee on Technological Options to Improve the Nutritional Attributes of Animal Products (1988) reported that animal products contribute about 36% of the calorie content of the food supply, more than a third of the iron, vitamin A, thiamine, and magnesium content. Moreover, about half of the niacin and vitamin B6, more than 70% of the zinc, more than 80% of calcium, and almost 100% of vitamin B12 are contributed by animal products, according to the National Research Council (US) Committee on Technological Options to Improve the Nutritional Attributes of Animal Products (1988).

Due to the cultural differences, different animals are used for various purposes, sometimes best known to each culture. These differences are seen in some countries or groups eating wild foods. Food and Agriculture Organization (FAO) (1999) defines wild foods as plants, such as roots and tubers, leaves, vegetables, and fruits, and animals, such as insects, amphibians, reptiles, birds, and mammals, which are not cultivated or reared, underutilised, and gathered for food (Adi *et al.*, 2020). Wild foods have attracted attention worldwide and remain popular due to the advent of COVID-19. For example, more than 60 pieces of wild foods are a significant source of the food basket in New Zealand, covering animals and plants, such as mutton-bird (sooty shearwater), seagull, possum, rabbit, deer, wild pig, salmon, trout, eel, watercress, sea lettuce, gorse, etc. (Bharucha *et al.*, 2010). Another example is China, the biggest wild trade market in the world. In this market, wild animals are used for various purposes, such as food, medicine, and laboratory research.

Moreover, despite no scientific results on its effectiveness, Pangolins are used to treat conditions such as blocked breast ducts, rheumatoid arthritis, and poor blood circulation. According to a report by the Chinese Academy of engineering in 2016, the value of wildlife trading inside China alone is around 520 billion yuan (USD 74 billion), and the industry employs more than 14 million people. However, the Chinese government announced the confiscation of 39,000 wild animals and about 350,000 sites where wild animals are traded, including restaurants and markets, following the COVID-19 outbreak (Arranz, 2020). This discussion points to the fact that not only animals that are permitted to be consumed by people, from the Islamic point of view, are famous around the world, but eating insects and other wild animals by different people in different places is also famous around the world. We posit here that despite having enough animals permitted to be consumed by people in their food baskets, various kinds of animals, now called wild foods, are eaten by humans (Bharucha *et al.*, 2010). This proves the importance of wild animals to some segments of people in the world.

## 2.2 Risk gaining by animal and wild food

Meanwhile, studies have proved that animals are the primary host of various hazardous viruses that can spread to people and cause illness (Aldana *et al.*, 2021; Sayed *et al.*, 2021; Markotter *et al.*, 2020). In a broad concurrence with the study of (Jones

*et al.* 2008), the World Health Organization (WHO) notes, in its regional committee report on zoonotic disease, that 75% of new human pathogens that infected humans emerged from animals (WHO-EMRO, 2021). Similarly, the Centers for Disease Control and Prevention (CDC, 2021) have also indicated that viruses or pathogens are transferable from animal to human or human through direct contact, indirect contact, vector-borne, foodborne, or waterborne. Foodborne, which can cause significant illness and death among the population, is one of the primary ways humans get infected by animals. According to WHO (2016), about 600 million people (or one in 10 people) each year fall ill around the world after consuming contaminated food; out of the stated number, around 420,000 people die, including 125,000 children under the age of five years, due to bacteria, viruses, parasites, toxins, and chemicals. Furthermore, the pathogens causing most human illnesses are norovirus, nontyphoidal salmonella, *clostridium perfringens*, and *Campylobacter spp.* (Scallan, 2011).

Viruses are also transmitted from animals to humans through direct contact, and such transmission can sometimes result in significant outbreaks, like COVID-19. Moreover, CDC notes that most emerging infectious diseases are dominated by zoonoses, with about 71.3% originating from wildlife. Looking to our previous history, from 1940 to 2004, about 335 infectious diseases reportedly emerged from animals, significantly impacting global health and economies. Some recent human pathogens are Human Immunodeficiency Virus (HIV) and Severe Acute Respiratory Syndrome (SARS). Similarly, an example of pathogens that are historically present in humans but increased dramatically recently is Lyme disease (Jones, 2008). This discussion suggests that the world has faced many fatal diseases that have resulted in many deaths worldwide. Sadly, most diseases transmitted from animals to humans have proven to be more hazardous and contagious. Recently, the world has been challenged by the novel COVID-19 that forced almost all countries across continents to close borders and lockdown their economies to guarantee the safety of lives. With its current negative impact around the world, researchers have suggested that animals are the possible primary reservoir and the source of the COVID-19 pandemic (Shereen *et al.*, 2020).

Besides the visible effects on people's livelihoods and wellbeing, hundreds of thousands of people have died from COVID-19 in various countries worldwide. The first case of COVID-19 was reported in Wuhan, the sprawling capital of Central China's Hubei province, in December 2019. Following its emergence in China, COVID-19 has quickly spread to several countries, resulting in stringent measures aimed at reducing its impacts by governments around the world. Even with such stringent measures, 184,573,435 cases and 3,993,591 deaths have been reported across the globe as of 5th July 2021, according to Worldometers. The impending effect of COVID-19 has made it the greatest catastrophe that the world has witnessed since the Second World War. Hence, this article offers *Syari'ah's* perspective on the issues surrounding the use of animals concerning the current health crisis – COVID-19 pandemic.

### 2.3 *Syari'ah* principles and wild food

Islamic principles about wild food:

Islam has presented unique rules about animals that can or cannot be consumed. The primary purpose of Islam is to protect human life; it is considered one of the five fundamental principles of *Maqasid Syari'ah*. Therefore, Islam permitted all things beneficial to human beings and prohibited all things causing impurity and harm. As a result, two terms introduced by Islam are known as *Halal* and *Haram*. *Halal* (permissible) associates strongly with benefits and sound, whereas *Haram* (prohibition) relates to harmful and impure. (Qardawi, 2008). So, it can be concluded that everything considered beneficial to a human being is *Halal*, and every dangerous thing that creates a harmful impact on the human being is *Haram*. By following this principle, Islam has introduced some rules and regulations relating to food and wildlife that clearly describe what is permitted and what is prohibited. The rules are below:

- 1) Every animal or product that consists of good, pure, and benefit is permitted in Islam, and every product and animal proving harmful and impure is prohibited (Abdullah, 1981). This is because *Allah* (sb) has ordered in the *Qur'an*: “makes lawful for them the good things and prohibits for them the evil”. (7:157). Also narrated “*Oh believers! Eat what We have provided for you of lawful and good things, and give thanks for Allah's favour, if it is, He whom you serve*” (*Qur'an* 2:172; 16:114). These verses indicated that *Allah* permitted (*Toyyib*) what good, pure beneficial and made prohibition what evil and harmful.

All harmful and impure products and animals are divided into three groups.

First: A general rule of *Syari'ah* is that it is prohibited (*Haram*) for the Muslims to eat or drink anything which may cause death or injures to health or consider harmful to the body. Therefore, *Syari'ah* has designed a principle stating, “Harm should be Removed”. (Ibn Nujaiem, 1999, p. 73). As the *Qur'an* mentions, “*And do not kill yourselves [for one another]. Indeed, Allah is to you ever Merciful*”. (4:29). Also stated, “*and do not throw yourselves into destruction (by not spending your wealth in the cause of Allah), and do good*”. (2:195). As narrated by his messenger (peace be on him), “There should be neither harming (*Darar*) nor reciprocating harm (*Darar*).” This evidence indicates that every animal or product that consists of poison, or toxin, harms human life, or proven hazardous is prohibited. For example, all animals with poison or toxins like snakes are prohibited by Islam to use as food, except for a productive purpose like medicine which saves human life. (Qardawi, 2008).

Second: All food and products containing intoxicants or drug elements are prohibited in *Syari'ah* law. (Ibn Hazam, p. 1/68) because they wipe the human brain and make a person unaware, harming the human brain. As the *Qur'an* mentions, “*They ask you about wine and gambling. Say, “In them is great sin and [yet, some] benefit for people. However, their sin is greater than their benefit.”* (2:219). Also narrated from Ibn 'Umar: “*The Messenger of Allah [SAW] said: 'Every intoxicant is Khamr and every intoxicant is unlawful'*”. (Sunan an-

Nasa'i 5585).

Third: impure, all products and animals identified as impure are prohibited. (Muhammad, 1992, p. 3/231). It includes identification as impure by people or *Syari'ah*. For instance: pork is considered impure in *Syari'ah*. As mentioned in *Qur'an*: “*Tell them, O Mohammad, I do not find, as per the Revelation that has descended upon me, anything unlawful for an eating one to eat except that if (1) it is a dead animal, or (2) it is the blood as it flows out, or (3) it is the flesh of swine, which verily is unclean, or (4) it is a transgression in the way that the animal is slaughtered without proclaiming the name of Allah on it*”. (6:145). This verse mentions the reasoning of prohibition pork which is (*Rizs*) means impure.

- 2) All types of flowing or liquid blood are prohibited in Islam. Ibn Abbas was asked about the spleen, and he replied, you can eat it. The questioner said, but it is blood; he answered that only flowing blood is prohibited to you. As mentioned in the *Qur'an*: “*Tell them, O Mohammad, I do not find, as per the Revelation that has descended upon me, anything unlawful for an eating one to eat except that if (1) it is a dead animal, or (2) it is the blood as it flows out*”. (6:145). The prohibition of flowing blood can be impure or impose hazardous viruses from the dead animal.
- 3) The flesh of dead animals is prohibited as food in Islam. The meaning of dead animal is animals that died without being slaughtered or hunted by men, such as beasts or fowl if it dies from natural causes or from falling from a cliff. This prohibition maybe because it is potentially harmful or impure, which is prohibited strictly in *Syari'ah*. There are five categories of animals that are considered “dead animals” in *Syari'ah*: a) an animal which has been strangled, for instance, by a rope around its neck, b) or animal has been beaten until its death by a club or similar blunt object, c) or animal has fallen from a high place that causes its death or falls into a gully or ravine, d) or animal is gored by the horns of another animal that cause death, e) or another animal has eaten some parts of it by the wild beast as a result of which it dies. These types of animals are prohibited in *Syari'ah*.
- 4) Every animal that uses talons or fangs for prey is prohibited in Islam. (Uddin, 1986, p. 5/39). For example, lions, tigers, eagles and other animals are prohibited. This is because these animals usually eat impure or dead foods, which may cause harm to humans. That is why Islam prohibited these animals. As narrated from the prophet: (peace be on him), Ibn 'Abbas narrated that: “*on the Day of Khaibar, the Prophet of Allah forbade eating any birds with talons and any predators with fangs*”.
- 5) Animals permitted to eat in Islam must be slaughtered following *Syari'ah* rules and conditions. According to the *Syari'ah* method, no animals are permitted to be eaten without being slaughtered. As mentioned in the *Qur'an*: “*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 [can] 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.” (5:3). According to this verse, slaughtering is identified as below:

The *Halal* purification of the flesh of animals requires the following condition:

- The animal should be slaughtered by a sharp object capable of making it bleed by severing blood vessels, even if the sharp object is a stone or piece of wood. The main object is bleeding. As the prophet narrates (peace be on him), “the objective is to make it bleed with whatever you have and mention the name of *Allah*”.
  - The slaughtering is to be done by cutting the animal's throat or by piercing the hollow of the throat, causing its death. The best way is to cut the windpipe, the gullet, and two jugular veins. However, if it becomes impossible to slaughter the animal in this manner, then make it bleed anywhere.
  - The name of *Allah* must be mentioned during the slaughtering of the animal. Mentioning any names other than *Allah* makes the animal prohibited. It is clearly stated in verse mentioned before. (Qardawi, 2008).
- 6) An animal which usually eats impure or unclear foods maximumly as known (*Jallalah*) in the Islamic context is prohibited from eating in *Syari'ah* because the animal diet always eats contaminated food (Ibn Nujaeim, p. 8/208). It is to be mentioned that animals that take contaminated food rarely are not considered prohibited. As narrated by the prophet: on the Day of Kahaibar, the Messenger of *Allah* forbade the flesh of domesticated donkeys and of *Al-Jallalah* (animals that eat dung), and (he forbade) riding them and eating their meat.

### 3. Discussion

#### 3.1 Applying of *Syari'ah* stander to animal

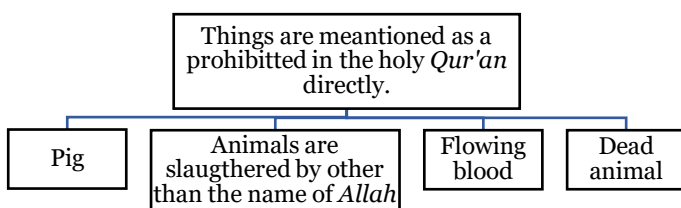


Figure 1: Animals prohibited from eating in *Syari'ah*

This is *notable* that every animal mentioned in the *Qur'an* is directly prohibited; the ruling of these animals is a prohibition in *Syari'ah* despite if it is possible to discover its reasoning or not. As a result, the mentioned animals are not permissible in *Syari'ah*.

All marine animals, those living in the water and cannot survive outside, are *Halal*. It must be noted that it is not needed to slaughter by following *Syari'ah's* manner, and all animals living underwater are lawful whether they are taken out alive or dead. *Therefore*, Islamic scholars designed a principle stating

that every animal living in water is *Halal*/ permitted in *Syari'ah*. The *Qur'an* states, “Lawful to you is game from the sea and its food as provision for you and the travellers” (5:96). As narrated from the Prophet (S) about animals alive in the water, *Allah's* Messenger said regarding the sea, “It is water is pure, and it is dead (animals) are lawful (to eat)”. Therefore, animals living inside the water are permitted in *Syari'ah* with two conditions: it does not cause harm and is beneficial for human beings. If the conditions are fulfilled, it considers as permitted in *Syari'ah*.

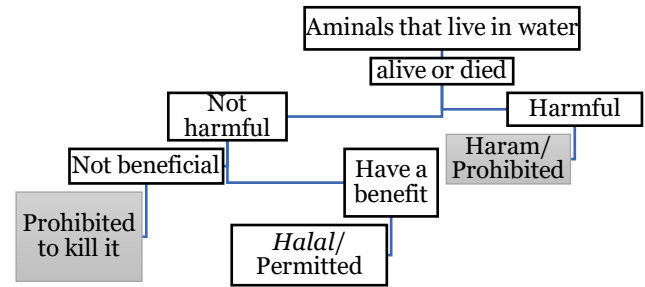


Figure 2: Islamic perspective about animals living in the water

Suppose one of these two conditions is absent in animals like it is proven as harmful to a human being. In that case, it will be considered as a prohibited in *Syari'ah*, or if it is not proven harmful to the human being as well as it does not have any benefit, it is impermissible to kill it according to *Syari'ah* principle, which states: that every animal that does not cause harm as well as not beneficial is prohibited to kill in *Syari'ah* (Al Suyuti, 1990, p. 448).

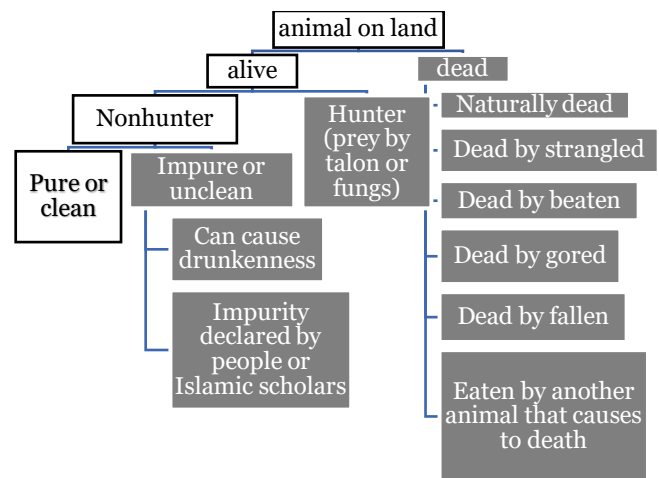


Figure 3: Islamic perspective about animals on land

- By applying the *Syari'ah* principles we described, firstly, animals on land can be divided into two types: alive and dead. As it is known, *Syari'ah* has prohibited every dead animal from eating. According to the *Syari'ah* rulings, it considers six types of animals as dead: an animal that died of natural causes, death by being strangled, falling, being beaten, being gored by another animal, or being eaten by another animal that leads to its death. Therefore, these six types of dead animals are prohibited in *Syari'ah*.

- b. Living animals are also separated into two types, predatory and non-predatory. According to *Syari'ah*, predatory means animals which prey and use their fangs and talons. This type of animal is prohibited according to the principle we mentioned before.
- c. The non-hunter animals are also categorised as pure or clean and impure or unclean. Defining impure or unclean in *Syari'ah* follows two ways; first, animals are declared impure by Islamic scholars applying *Syari'ah* principles, or people (custom) consider them as impure.

this harm cannot be eliminated by vaccine or any other way, it will be considered prohibited in *Syari'ah*. However, if it is possible to eliminate the harm by the vaccine or other ways, another angle must be considered. Is it beneficial or not? If it is not harmful and does not have a benefit, it is prohibited to kill in *Syari'ah*. If it has benefits after eliminating harm, it will be considered permitted after applying the slaughtering manner ordered by *Syari'ah*. Otherwise, it will be considered as not permitted in *Syari'ah*.

f. If it is not causing harm, the principle of benefit will be applied. Is it beneficial or not? If it is not harmful and does not have a benefit, then it is prohibited to kill in *Syari'ah*. If it is beneficial, the *Syari'ah* will consider the animal as permitted after applying the slaughtering manner ordered by *Syari'ah*. Otherwise, it will be considered as not permitted in *Syari'ah*.

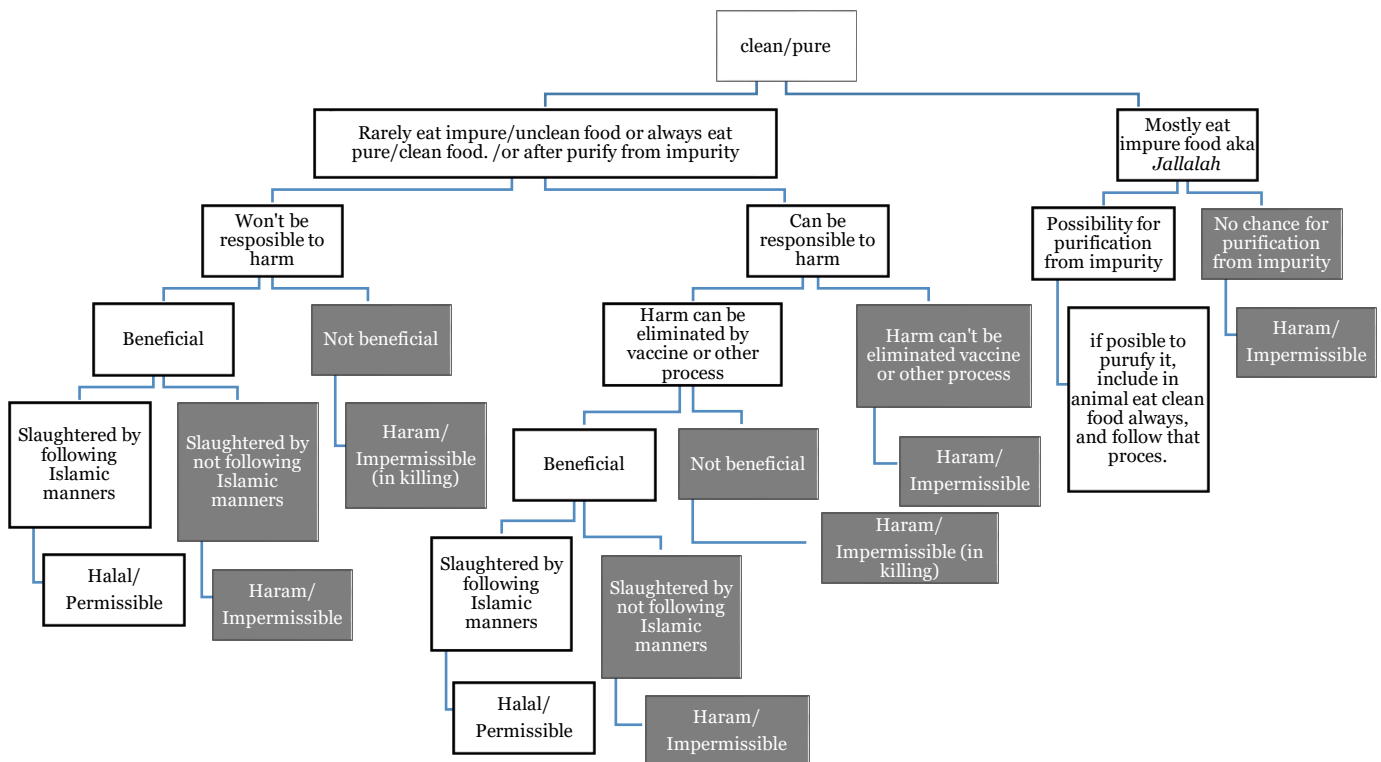


Figure 4: Islamic perspective about animals on land

- d. The pure or clean animal is also divided into two categories depending on the animal's eating habits: Animals eating impure food, known as *Jallah* in the *Syari'ah* context, and animals eating pure food maximumly or eating impure food rarely. *Syari'ah*'s rule about *Jallah* is that it is not permitted to eat it if it is impossible to purify by following *Syari'ah*'s manners. If it is possible to purify by following conditions, it will be considered pure or clean animals. If it is impossible to purify, it will be considered impure animals prohibited.
- e. The animals eating pure or considered as pure after purifying are divided into two categories depending on the principle of harming. Is the animal responsible for harm or not? If it is responsible for the harm and

**4. Results**

It is found that most viruses and pathogens causing a significant outbreak in the human population are transmitted from animal to human. It is about 75% of total viruses. Furthermore, wild animals contribute about 71.3% of the total amount of hazardous viruses. Despite being responsible for maximum fatal viruses and pathogens, wild animals gain popularity in various uses worldwide, leading to a high risk of transmission of new, unknown viruses. Therefore, there needs to be more control over its use and strictly suspend them from being sold in the wet markets until safety is ensured.

*Syari'ah*'s principles and rules have given us the best way of using animals and wild animals safely, including some steps that will help prevent the transmission of new viruses in the

human population. Firstly, *Syari'ah* has not permitted some kinds of animals to eat and kill, which are considered impure or eating impure food, as well as animals' prey with fangs and talons. Secondly, wild animals that have proven harmful already must be prohibited from eating or using.

Other wild animals not proven as harmful yet, are also not permitted in *Syari'ah* until their safety is ensured from hazardous viruses. Because it has been proven that the overwhelming majority of harmful and fatal diseases caused the significant outbreak in the human population have emerged in wild animals. That is why *Syari'ah's* legal maxims, "The averting of evil is better than the doing of good" indicates such animals are prohibited until safety is ensured. As a result, we can conclude that because of proving wild animals as a significant source of harmful diseases, they will be considered prohibited from eating or kept until safety is ensured.

## 5. Conclusion

This research aims to represent the best way of using animals and wild animals, ensuring safety from any viruses transmitted by animals. It has been found that animals are a large source of hazardous viruses, which caused a significant outbreak in the human population. According to previous research, about 75% of viruses come from animals. Though animals are a significant source of hazardous viruses, it is impossible to avoid in human life because it has been proven that animals are the largest source of human needs, such as food and nutrients. For this reason, it is required to find a way to show the best way of using animals to avoid all hazards.

Interestingly, Islam has guided the best way to use the animal, ensuring safety. It is found that *Syari'ah* has introduced the idea of the *Halal* animal, which could succeed in solving this problem. The idea of *Halal* animal is the limitation of using animals based on a few principles: being pure, beneficial, not consisting of any harm, not preying with talons or fangs and must follow the slaughtering manners. By applying these principles, it is found that the maximum animals were defined as a reservoir of virus and caused the significant outbreak would be prohibited in Islam, which undoubtedly proves the importance of Islamic rules. In conclusion, it is said that viruses from animals and wild animals can be successfully prevented by applying the idea of the *Halal* animal.

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