Will Muslim consumers replace livestock slaughter with cultured meat in the market?

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ABSTRACT

Background: The innovation of cultured meat has breathed new life into the human diet. It has gained media traction as one of the ways to reduce dependence on animal husbandry and slaughter, and environmental pollution related to meat processing. For Muslims, slaughtering of livestock is engrained in Islamic teachings primarily during two (2) occasions: the sacrifice of an animal on the event of a child’s birth (aqiqa) and Festival of Sacrifice (Eid ul Adha) is a form of ritual before Allah, the Almighty. However, the question arises, once cultured meat commercialises and enters the market, will Muslims cease from slaughtering livestock?

Scope and approach: This commentary aims to answer the question by analysing two primary sources of Islam, namely the al-Quran and hadith, with further contextual substantiation from authoritative opinions of scholars. Key finding and Conclusion: Cultured meat has the potential to become an alternative to conventional meat in the market with conditions stipulated by Shariah guidelines. Nonetheless, the inevitable commercialisation of cultured meat cannot hinder Muslims from slaughtering livestock due to Islam’s element of thawabit (immutable) with mandatory (wajib) adherence. The unprecedented advancements in science and technology shall not alter characteristics of thawabit (immutable) rulings.

1. Introduction: meat consumption history and cultured meat

Meat is one of the primary sources of protein in the human diet. It maintains the health and physical development of humans. Other elements such as vitamins, minerals, fats and amino acids have their respective roles in the human body (Bohrer, 2017; Mann & Cordain, 2009). History shows that humans have been consuming meat since the prehistoric period. The earliest humans were the Palaeolithic society recorded to have lived over 2.5 million years ago (Geographic, 2005). Historical evidence indicates that the Palaeolithic society consumed meat as part of their diet. The discovered fossils prove that they used sharp stones to cut meat before eating it (Swatland, 2000; Unger, 2004; Unger & Sponheimer, 2011). The debate over prehistoric human nutrition diets is a heated polemic among nutritionists and anthropologists. Various methods have been used to study food and evolution of human nutrition, either by comparing nutrition with mammals (Hylander, 1978; Widdowson, 1992), analysing isotopic compositions obtained from the human bone and teeth fossils (Ambrose & DeNiro, 1986), studying the environment of the Palaeolithic society (Bunn et al., 2010), and observing the life of hunter-gatherer communities which still exist until today (Hill, 1982; O’Connell, Hawkes, & Jones, 1988). Nevertheless, scholars have unanimously agreed on the notion of immutable rulings.

In a Brand-Miller study towards 13 similar populations in several different countries, hunter-gatherer communities showed a similar trait: Animals are their staple diet compared to plant-based food. Among their meat of choice are wild boars, antelopes, deers, goats, rabbits, Rodentia, squirrels, birds, snakes, armadillos, lizards, ducks, fish and insect larvae (Mann & Cordain, 2009).

The hunter-gatherer tradition, compared to culturally-engrained hunting practices, has transitioned into a domestic life that uses agriculture and livestock as methods to obtain food supply. Such transition is termed as the ‘Neolithic Revolution’, introduced by an Australian...
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archaeology and anthropology expert, V. Gordon Childe. However, other scholars are inclined to use an alternative term called ‘agricultural revolution’. Apart from the Industrial Revolution, this change is one of the essential revolutions in human history. Various theories have attempted to explain the factors that led to this change. Among them are, the decrease in animal population due to overhunting, increased human population affecting the increase in demand for food, changes in weather or environment, and human enquiries to experiment with plants. Nevertheless, none of the theories could definitely and satisfactorily provide an outlook on the transition (Childe, 1936; Scales, 2018; Weidorf, 2005).

Throughout history, conventionally, humans’ meat sources are livestock such as cattle, goats and chickens. Science and technology innovations discovered unconventional breakthroughs that allow meat production without the need to breed animals; instead, meat is cultured in laboratories or bioreactors through specific procedures. The idea to culture meat has existed since the early 1930s but only came into fruition on August 5, 2013, when Mark Post introduced the first cultured meat in Riverside Studios. He is the first scientist to create a cultured meat burger successfully. The burger was eaten and judged by two panellists; Josh Schonwald, author of the book “The Taste of Tomorrow” and Hanni Rutzler, a nutritionist from Austria (Choudhury, Tseng, & Swartz, 2020; Hamdan & Ramli, 2019).

2. Conventional and cultured meat

Parties involved in the production of cultured meat claim that the process saves time, reduces costs such as water and is more environmentally friendly compared to conventional meat. For instance, to obtain 1 kg of beef, a cow needs to be slaughtered after at least four to five years of breeding. In contrast, cultured meat technology is more time-saving (Zuhaib F. Bhat, Bhat, & Kumar, 2020, pp. 1369–1388; Mark J Post, 2012). One research claims that for a cow to produce 1 kg of meat, it needs to consume 50,000 to 100,000 water (May & Fleming, 2013). Other research claims that the numbers mentioned earlier are too high, and the more accurate water consumption volumes are between 550 and 700 L (Chiri & Hocquette, 2020; Doreau, Corson, & Wiedemann, 2012). Livestock agriculture is one of the leading causes of environmental pollution, such as soil acidification and water pollution. Thus, the problem of pollution is also expected to be reduced through cultured meat.

Cultured meat production is also more animal-friendly than slaughtering animals in conventional meat processing, which is considered cruel to animals by several parties’ standard (Alexander et al., 2017; Joshi, Tewari, Pandey, & Nautiyal, 2020). Thus, the introduction of cultured meat can reduce and stop the slaughter of livestock. Consumers are given the alternative to choose; previously, only conventional beef was available in the market. Scientists are doing their best to prevent livestock’s death in the process of cultured meat production by acquiring stem cells from living animals and applying serum-free culture media (M.J. Post & Hocquette, 2017). Some parties claim that should this technology become well-developed, then, obtaining meat requires nearly nil farms. However, budget allocations are necessary to construct bioreactors that will cultivate the meat demand in dedicated villages or residential areas (Zuhaib Fayaz Bhat & Fayaz, 2011).

3. Halal cultured meat

Muslim consumers adopt a “halal” and “tayyib” diet derived from the Quran and hadith’s guidance. “Halal” means lawful or permitted while “tayyib” means excellent or pleasant (Al-Qurtubi, 2006; Bonne & Verbeke, 2008; Fischer, 2011). This concept can be found in the Quran and is repeated four times in various chapters such as (i) al-Baqarah, Chapter 2, Verse 168, (ii) al-Maida, Chapter 5, Verse 88, (iii) al-Anfaal, Chapter 8, Verse 69, (iv) al-Nahl, Chapter 16, Verse 114. For a meat to be lawful, several prerequisites need to be fulfilled such as it must adhere to the slaughtering process by Muslims, mention Allah’s name during the slaughtering session and use only sharp cutting tools. If these requirements are not met, the meat will not attain the status of halal. Subsequently, the meat processing procedure must comply with halal standards such as keeping the processing place clean, and there is no mixing between halal and non-halal meat. Halal meat is to be processed distinctly and stored in a freezer separate from non-halal meat. Food safety aspects are also included in the “halal” and “tayyib” concepts (Alzeer, Rieder, & Hadeed, 2018; Kuwait, 1986). These two concepts are the guiding principles in determining halal certification standards of every halal governing bodies and authorities in all countries, whether in Islamic states or not. However, the details and rules of the two concepts may slightly differ in each of the bodies.

Since cultured meat’s introduction in 2013, there are three opinions of Muslims in the permissibility of its consumption. The first view completely rejects the concept of cultured meat because it is contrary to the nature of meat God has created. The argument, taken verbatim from the Qur’an, forbids the act of ‘altering God’s creation’ in Surah al-Nisa, chapter 4, verse 119 and regards the act of producing cultured meat without going through livestock agriculture as ‘altering God’s creation’ (Hossain, 2019; Mawdudi, 2004). A study of 12 authoritative exegetists on the verse shows that the classification of cultured meat under the concept of ‘altering God’s creation’ is out of the real context (Hamdan & Ramli, 2019). The second view maintains a non-bias approach, neither agreeing nor disagreeing until cultured meat is successfully understood and entered the market. This condition is called tawaqquf (Al-Munajjид, 2018). The third view permits halal cultured meat production with the necessity that stem cells are obtained from halal sources; taken from animal meat slaughtered according to Islamic guidelines. Also, the culturing media used must be halal and free from unclean elements such as blood because Islam prohibits blood consumption as stated in the Qur’an; Surah al-Baqarah, chapter 6, verse 143 (Hamdan, Post, Ramli, & Mustafa, 2018). To date, there are several serum alternatives identified, such as mushroom extract and algae (Bodiou, Moutsatsou, & Post, 2020). Thus, in determining the halal status of cultured meat, the two main criteria that encompass a more accurate view are; halal source of stem cells for meat cultivation and halal culture media.

4. Livestock slaughter in the muslim community

The objective to stop livestock slaughter altogether appears contradictory to the Muslim practice. Muslims shall adamantly slaughter livestock in two occasions, namely, the sacrifice of animals on the event of a child’s birth (aqipah) and yearly Festival of Sacrifice (Eid ul Adha) every 10 Zulhujjah according to the Hijri calendar. The process of halal cultivated meat also involves the act of slaughtering the livestock to obtain its stem cells. In addition, the culture medium used must also be free from blood elements such as animal serum. Thus, cultured meat, developed from stem cells from halal sources and halal culture media such as mushroom extract or algae, will produce halal cultured meat.

Hence, why Muslims need to kill livestock and keep on slaughtering, especially during the two mentioned occasions? Islam is among the Abrahamic Religions (sama?i); its primary sources, the al-Qur’an and hadith of Prophet Muhammad, are the backbone guiding Muslims’ daily practices. The obligation to slaughter livestock is discussed in the al-Qur’an through Chapter al-Maidah (The Table Spread), Chapter 5, Verse 3, which states:

“You are forbidden to eat carrion; blood; pig’s meat; any animal over which any name other than God’s has been invoked; any animal strangled, or victim of a violent blow or a fall, or gored or savaged by a beast
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of prey, unless you still slaughter it [in the correct manner] (Haleem, 2005).1 Qur’anic exegetists say that the word “unless you still slaughter it” shows the obligation to slaughter livestock and the meaning of “carrion” in the previous verse refers to dead animals that did not undergo the proper process of slaughtering (Ibn Kathir, 1999).

The Prophet Muhammad encouraged slaughtering during *aqiqa* through his hadith: “*Aqita* is to be offered for a (newly born) boy, so slaughter (an animal) for him, and remove dirt and faeces from the animal’s body”2 (Al-Bukhari, 2000). Hadith scholars (*muḥaddithūn*) explain the meaning of “dirt and faeces” from the hadith refer to the blood which was excreted from the slaughtered animal (Al-Asqalani, 1992).

Whereas, the appraisal to slaughter during *Eid ul Adha* is seen from the Prophet’s hadith “No other deed on the day of al-Nahr (*Eid ul Adha*) is more loved by Allah than shedding blood (sacrificial animal)”3 (Al-Tirmidhi, 2000). The meaning of “shedding blood” in the hadith indicates to slaughter livestock (Al-Kashmiri, 2004).

If cultured meat goes through a halal process, then Muslims can consume it. However, during the two crucial occasions of *aqiqa* and *Eid ul Adha*, the latter cannot substitute the former. The reason is that Al-*thawabit*’s decree in both the al-Qur'an and hadith of the Prophet is divided into two types of instructions, namely, immutable (*thawabit*) and changeable (*mutaghyayirat*). Immutable (*thawabit*) rulings are typically agreed by the majority of jurists and involve fundamental rituals such as prayer, fasting, zakat and pilgrimage. The matter of *mutaghyayirat* usually consists of the physical rituals such as the method of performing prayers that can change according to the health condition of a person either praying while standing, sitting or lying down. Scholarly disputes on rulings among jurists are generally in matters of *mutaghyayirat*. Scholars resolve disputes by stating that rulings are affected by a change of venue, time, and person’s condition if such a situation arises. Therefore, the act of slaughtering is immutable (*thawabit*). However, the method of how it is carried out differs according to how scholars understand the sources of al-Qur’an and hadith of Prophet Muhammad (Al-Hammam, 1933; Hallaq, 2004; Jalil, Mohd Ramli, 2019). K. Tahir-ul-Qadri from IAIS Malaysia for his contribution to improving the use of English in this manuscript.

5. Conclusion

The halal diet concept is an integral part of a Muslim’s diet, and it is an obligation that must be followed at all times. One of the main elements in a halal diet is the slaughter of livestock which is considered immutable (*thawabit*) and cannot be changed; similarly, the encouragement of slaughter during the celebration of *aqiqa* and *Eid ul Adha*. However, cultured meat has the potential to be the alternative to conventional meat for the Muslim market as long as it complies with halal standards. In answering the question of “Will Muslim consumers replace livestock slaughter with cultured meat in the market?” No. The practice shall continue among Muslims, but with a reduction in frequency.

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