

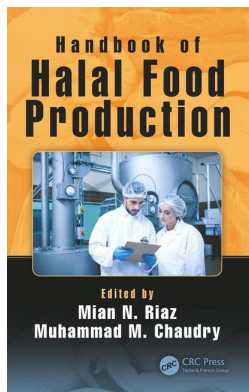
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General Guidelines for Halal Food Production

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3 General Guidelines for Halal Food Production

Mian N. Riaz and Munir M. Chaudry

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In Chapter 2, halal laws and regulations were discussed, and in this chapter, we will try to explain how these laws and regulations apply to real situations in the production of halal food. The guidelines in this chapter are general in nature and specific guidelines for different product types appear in subsequent chapters. Here, foods are broadly classified into four groups to establish their halal status and to formulate guidelines for halal production and certification.

MEAT AND POULTRY

It is understood that meat of only halal animals is allowed for consumption by Muslims. An animal must be of a halal species to be slaughtered as halal (Qureshi et al., 2012).

The animal must be slaughtered by a sane adult Muslim while pronouncing the name of God. A sharp knife must be used to cut the throat in a manner that induces thorough removal of blood and quick death (AMI, 2007; Grandin, 2010). Islam places great emphasis on the humane treatment of animals. The animals must be raised, transported, handled, and held under humane conditions. However, these are only desirable actions and mishandling of animals does not make their meat haram (Apple et al., 2005; Hambrecht et al., 2004; Kannan et al., 2003; Ljungberg et al., 2007; Schaefer et al., 2001). Stunning of animals before the non-religious slaughter is generally accepted by Muslims in the U.S. and Canada when the methods of intervention are non-lethal, that is, the animal can recover, and be healthy and functioning sometime after the intervention. In many European countries, the type and severity of stunning usually kills the animals before bleeding, which makes it unacceptable for halal (Gibson et al., 2009; Gregory et al., 2010). Moreover, the start of dismemberment (e.g., cutting off the horns, ears, lower legs) of an animal must not take place before the animal is completely dead (Chaudry, 1997; Small et al., 2013).

CONDITIONS AND METHOD OF SLAUGHTERING (DHABH OR ZABH)

Dhabh is a clearly defined method of killing an animal for the sole purpose of making its meat fit for human consumption. The word dhabh in Arabic means purification or rendering something good or wholesome. The dhabh method is also called dhakaat in Arabic, which means purification or making something complete (Jamaludin, 2012).

The following conditions must be fulfilled for dhabh to meet the requirements of Muslim Islamic law (jurisprudence).

THE SLAUGHTERER

The person doing the dhabh must be of sound mind and an adult Muslim. The person can be of either sex. If a person lacks or loses competence through intoxication or loss of mental abilities, he or she may not do halal slaughter. The meat of an animal killed by an idolater, a nonbeliever, or someone who has apostatized from Islam is not acceptable (Anil et al., 2000; Limon et al., 2010; Önenç and Kaya, 2004).

The killing of an animal as halal by a person of the book will be discussed separately.

THE INSTRUMENT

The knife used to do the dhabh must be extremely sharp (and ideally free of any nicks) to facilitate quick cutting of the skin and severing of blood vessels to enable the blood to flow immediately and quickly, in other words, to bring about an immediate and massive hemorrhage (Grandin, 2010). The Prophet Muhammad (PBUH) said: "Verily God has prescribed proficiency in all things. Thus if you kill, kill well; and if you perform dhabh, perform it well. Let each of you sharpen his blade and let him spare suffering to the animal he slays" (Khan, 1991). The Prophet (PBUH) is reported to have forbidden the use of an instrument that killed the animal by cutting

its skin but not severing the jugular vein. It is also a tradition not to sharpen the knife in front of the animal about to be slaughtered (AFIC, 2003; AMI, 2007).

THE CUT

The incision should be made in the neck at some point just below the glottis and the base of the neck. Traditionally, camels used to be slayed by making an incision anywhere on the neck followed by a traditional horizontal cut. This process is called nahr, which means spearing the hollow of the neck. With modern restraining methods and reversible stunning techniques, it might be appropriate to consider whether this procedure should be phased out. The trachea and the esophagus must be cut in addition to the jugular veins and the carotid arteries. The spinal cord must not be cut (AMI, 2007; Anil et al., 2002). The head is therefore not to be severed completely. It is interesting to note that the kosher kill is very similar to the traditional method of dhabh described, except that the invocation is not made on each animal although a single prayer is said by the slaughterer before work is begun (Regenstein et al., 2003).

THE INVOCATION

Tasmiyyah or the invocation means pronouncing the name of God by saying Bismillah (in the name of Allah) or Bismillah Allahu Akbar (in the name of God, God is Great) before cutting the neck. Opinions differ somewhat on the issue of the invocation as addressed by three of the earliest jurists. According to Imam Malik, if the name of God is not mentioned over the animal before slaughtering, the meat of the animal is haram or forbidden, whether one neglects to say Bismillah intentionally or unintentionally. According to the jurist Abu Hanifah, if one neglects to say Bismillah intentionally, the meat is haram; if the omission is unintentional, the meat is halal. According to Imam Shaf'ii, whether one neglects to say Bismillah intentionally or unintentionally before slaughtering, the meat is halal so long as the person is competent to perform dhabh (Department of Standards Malaysia, 2009; Khan, 1991). It should also be said that the above traditions do not prove that the pronouncing of God's name is not obligatory when doing dhabh. In fact, the tradition emphasizes that the pronouncing of God's name was a widely known matter and was considered an essential condition of dhabh (Khan, 1991).

ABOMINABLE ACTS IN SLAYING OF ANIMALS

It is abominable to first throw the animal down on its side and sharpen the knife afterward. It is narrated that the Prophet (PBUH) once passed by a person who, having cast a goat to the ground, was pressing its head with his foot and sharpening his knife while the animal was watching. The Prophet (PBUH) said, "Will this goat not die before being slain? Do you wish to kill it twice? Do not kill one animal in the presence of another, or sharpen your knives before them" (Khan, 1991; Micera et al., 2010).

It is abominable to let the knife reach the spinal cord or to cut off the head of the animal. In South Asia, the term used for cutting of the head, usually by hitting the

animal from behind the neck, is called *jhatka* or killing with a blow. There is general abhorrence in the Muslim community to such killing.

It is abominable to break the neck of an animal or begin skinning it or cut any parts while it is convulsing or before its life is completely departed. The Prophet Muhammad (PBUH) said, "Do not deal hastily with the souls (of animals) before their life departs" (Khan, 1991). It is sometimes the practice in fast-paced commercial slaughterhouses to start removing the horns, ears, and front legs while the animal still seems to be alive. This is against the principles and requirements of *dhabh* and must be avoided (Casoli et al., 2005). Note that the modern scientific signs of animal insensibility are the absence of any head reflex and the tongue going limp. The kicking of the legs is an involuntary action and does not mean the animal is still alive. It is abominable to perform *dhabh* with a dull instrument. The Prophet Muhammad (PBUH) commanded that knives be sharpened and be concealed from animals to be slain. It is also abominable to slaughter one animal while the next in line is watching the animal being killed. This is against the humaneness of the process of slaughtering (Nakyinsige et al., 2012).

From the foregoing description, it is clear that both intention and a precise method are conditions for the validity of *dhabh*. The insistence on pronouncing the name of God before slaying an animal is meant to emphasize the sanctity of life and the fact that all life belongs to God. Pronouncing the *tasmiyyah* induces feelings of tenderness and compassion, and serves to prevent cruelty. It also reinforces the notion that an animal is being slaughtered in the name of God for food and not for recreational purposes. Islam does not allow killing an animal for the sole purpose of receiving pleasure out of killing it (Department of Standards Malaysia, 2009).

ADVANTAGES OF HALAL SLAUGHTERING

The actual method of *dhabh* has many advantages. To begin with, the speed of the incision made with the recommended sharp knife shortens the total time to slaughter. In a modern slaughterhouse, where animals are stunned before slaying, some of the animals do not become unconscious with one blow and have to be hit more than once, which is very painful.

The method of *dhabh* allows rapid and efficient bleeding of the animal. It is also obvious that blood being enclosed in a closed circuit can be removed faster by cutting the blood vessels. The force of the beating of the heart keeps the blood circulating. Therefore, the stronger the heartbeat, the greater the quantity of blood that will pour out quickly at the beginning. The body of the *dhabh* animal convulses involuntarily more than the stunned animal. Convulsions produce the squeezing or wringing action of the muscles of the body on the blood vessels, which helps to get rid of the maximum amount of blood from the meat tissue (Department of Standards Malaysia, 2009; Khan, 1991). The physiological conditions described help with blood removal, but they only operate fully if the animal is bled while alive by cutting across its throat and sparing the vertebral column without stunning the brain of the animal in any way (Khan, 1991). With the type of stunning and the force of the blow or shock used in North America, animals are usually alive for several minutes after stunning. The throat is generally cut within the first two minutes after stunning.

For these reasons, stunning of cattle with a penetrating captive bolt and poultry with electrified water is done in some dhabh slaughter. In some other countries, the blow of stunning is severe enough to kill the animal. In Australia, some organizations contend that stunning renders the animals dead; hence, these organizations do not permit stunning for halal slaughter (AFIC, 2003). Some countries such as New Zealand allow a specifically developed mild reversible stun for halal slaughter of animals. The issue of interventions prior to the traditional halal slaughter of animals remains controversial.

FISH AND SEAFOOD

To determine the acceptability of fish and seafood, one must understand the rules of the different schools of Islamic jurisprudence as well as the cultural practices of Muslims living in different regions. Fish with scales are accepted by all denominations and groups of Muslims. Some groups do not consume fish without scales (e.g., catfish). There are additional differences among Muslims about seafood, especially mollusks (e.g., clams, oysters, and squid) and crustaceans (e.g., shrimp, lobster, and crab) (Regenstein et al., 2003). The requirements and restriction apply not only to fish and seafood but also to flavors as well as other ingredients (e.g., chitosan) derived from such products. Even within a single school, acceptable seafood may vary, often as a reflection of the traditions and customs of the country. A more detailed study of Muslim customs with respect to seafood would be of help to the food industry in providing appropriate seafood to different countries (Mickler, 2000).

MILK AND EGGS

Milk and eggs from halal animals are also halal. Predominantly, milk in the West comes from cows and eggs come from chicken hens. All other sources are required to be labeled accordingly. Numerous products are made from milk and eggs. Milk is used to make cheese, butter, and cream. A variety of enzymes are used in the production of cheeses. Which types of enzymes are used in the making of cheeses is very important (Guerrero-Legarreta, 2010; Hui, 2006). Enzymes can be halal or haram, depending on their origin and their production. Enzymes from microbial and plant sources or halal-slaughtered animals are halal. However, an enzyme from a non-halal-slaughtered animal even of a halal acceptable species or from a porcine source is haram. Depending on the enzymes used in production of cheeses or other dairy products, the products are classified as halal, haram, or makrooh (questionable) (Al-Mazeedi et al., 2013; Khattak et al., 2011). On the same basis, other functional additives such as emulsifiers or mold inhibitors should also be screened to take the doubt out of milk or egg products (Riaz, 2000).

PLANT AND VEGETABLE MATERIALS

Foods from plants are halal, with the exception of khamr (intoxicating drinks). In modern processing plants, however, animal or vegetable products might be processed in the same plant on the same equipment, increasing the chances of contamination.

For example, in some factories, pork and beans as well as corn are canned on the same equipment. When proper cleaning procedures are used, and the halal production segregated from the non-halal, contamination can be avoided. Functional ingredients from animal sources, such as antifoams, must also be avoided in the processing of vegetables. This intentional inclusion of haram ingredients into plant and vegetable products may render them as haram. It is evident that processing aids and production methods have to be carefully monitored to maintain the halal status of vegetable products (Regenstein et al., 2003).

Many fruits and vegetables are coated with “waxes” to make them shine, to retain moisture, or to carry compounds that protect the fruit or vegetable from spoilage. These compounds can include animal components. In the U.S., there is a requirement that these products be labeled with the source of the coating ingredients. These need to be on the master package and a general sign in the vicinity of the fruit and vegetables with such treatments. Generally, these lists do not contain “animal” products as the sellers (e.g., supermarkets) have made it clear they do not want such products. However, in other countries, it is important to check that no animal products are used.

FOOD INGREDIENTS

Food ingredients are one of the main subjects of concern. Vegetable products, as mentioned earlier, are halal unless they have been contaminated with haram ingredients or contain intoxicating substances. The requirements for animal slaughter and the types of seafood permitted for consumption have already been discussed. In this section, a number of commonly used ingredients such as gelatin, glycerin, emulsifiers, enzymes, alcohol, animal fat and protein, and flavors and flavorings will be discussed in more detail. Because most of the products fall into questionable or doubtful categories, they require that the majority of manufacturers have their plants inspected and products certified as halal (Al-Mazeedi et al., 2013; Kamaruddin et al., 2012).

GELATIN

The use of gelatin is very common in many food products. Gelatin can be halal if from dhabh-slaughtered animals, doubtful if from animals not slaughtered in a halal manner, or haram if from prohibited animal sources. The source of gelatin is not required to be identified by the U.S. Food and Drug Administration (FDA) on product labels. When the source is not known, it can be from either halal or haram sources, hence questionable. Muslims avoid products containing gelatin unless they are certified halal. Common sources of gelatin are pigskin, cattle hides, cattle bones, and, to a smaller extent, fish skins and scales. Halal products use gelatin from cattle that have been slaughtered in an Islamic manner or from fish. Some products in the U.S. list “Kosher Gelatin” as an ingredient. When certified using only the letter “K,” these products are not acceptable to Muslim consumers (Cheng et al., 2012; Hermanto and Fatimah, 2013). However, products from normative mainstream kosher certifiers will often list gelatin as “Fish Gelatin,” which is acceptable or gelatin if it is from

kosher-slaughtered cattle. The acceptability of the latter must be decided on by each halal consumer (Jaswir et al., 2009).

GLYCERIN

Glycerin is another ingredient widely used in the food industry. Products containing glycerin are avoided by Muslims because it could be from animal sources. Currently, glycerin from palm oil and other vegetable oils is available for use in halal products and is again used in all kosher products.

EMULSIFIERS

Emulsifiers such as mono-glycerides, di-glycerides, poly-sorbates, diacetyl tartaric esters of mono- and di-glycerides (DATEM), and other similar chemicals are another commonly used group of ingredients that can come from halal or haram sources. Some of the companies have started to list the source, especially if it is vegetable, on the labels. If an emulsifier from vegetable sources is used, it is advantageous to indicate that on the label. Emulsifiers from vegetable sources and halal-slaughtered animal sources are halal. All such compounds are from vegetable or microbial sources in kosher products.

ENZYMES

Enzymes are used in many food processes. The most common are the ones used in the cheese and the starch industries. Until a few years ago, the majority of the enzymes used in the food industry were from animal sources; now there are microbial alternatives, which are widely used because they are generally less expensive and can be produced more consistently (Birch et al., 2012; Oort, 2009).

Products such as cheeses, whey powders, lactose, whey protein concentrates, and isolates made using microbial enzymes are halal as long as all other halal requirements are met. Some products made with mixed or animal-based enzymes are haram if porcine enzymes are used; otherwise, they fall in the doubtful category. Bovine rennet and other enzymes from non-halal-slaughtered animals have been accepted by some countries. As more and more microbial enzymes become available, such acceptance can be expected to decrease. Use of dairy ingredients in all types of food products is very common, because whey and whey derivatives are an economical source of protein. For the products to be certified halal, dairy ingredients as well as other ingredients must be halal. Again, kosher products avoid animal-based enzymes (Al-Mazeedi et al., 2013; Khattak et al., 2011).

ALCOHOL

Muslims are prohibited from consuming alcoholic beverages, even in small quantities. Alcoholic drinks such as wine and beer should not be added to other products for flavoring or during cooking. Even a small amount of an alcoholic beverage added to a halal product makes it haram (Riaz, 1997). Cooking with wine, beer, and other alcoholic beverages is

quite common in the West as well as in China. In Chinese cooking, rice wine is a common ingredient in many recipes. Product formulators and chefs should avoid the use of beverage alcohol in preparing halal products (Halal Consumer Group, 2012).

Alcohol is so ubiquitous in all biological systems that even fresh fruits contain traces of alcohol. During extraction of essences from fruits, alcohol might get concentrated into the essences. Because such alcohol is naturally present and unavoidable, it does not nullify the halal status of food products in which such essences are present. Furthermore, alcohol in its pure form is used for extracting, dissolving, and precipitating in the food industry. As it is the best solvent or chemical available in many cases to carry out certain processes, religious scholars have realized its importance for use in the industry. Ingredients made with alcohol or extracted by using alcohol have become acceptable as long as the alcohol is evaporated from the final ingredient. Food ingredients with 0.5% residual or technical alcohol are generally acceptable. However, for consumer items, acceptable limits vary from country to country and one group to another. The Islamic Food and Nutrition Council of America accepts a level of 0.1%, which it considers an impurity. In halal food laws, if an impurity is not detectable by taste, smell, or sight, it does not nullify the halal status of a food (Al-Mazeedi et al., 2013).

An article titled Change of State—Istihala (Al-Quaderi, 2001) supports this position in the following words. Wine is haram; however, if the same wine turns to vinegar it becomes halal. The use of vinegar derived from wine is halal as long as no wine remains in it. From these examples, it becomes clear that if an unlawful food item changes state, then the original ruling also changes.

ANIMAL FAT AND PROTEIN

Meat and poultry products are not only consumed as staple food items but are also converted into further processed ingredients to be used in formulating a myriad of non-meat food products. In the food industry in the U.S. as well as in other industrialized countries, every part of the animal is used in one way or another. Less desirable parts of the carcass and by-products may be turned into powders that can be used as food ingredients, for example, flavoring agents for soups and snacks. Animal fat is purified and converted into animal shortening and emulsifiers, as well as other functional food ingredients. Feathers and hair can be converted into amino acids. Such ingredients would be halal only if the animals are halal and all precautions are taken to eliminate cross-contamination (Al-Mazeedi et al., 2013; Regenstein, 2012).

FLAVORS AND FLAVORINGS

Flavors and flavorings can be as simple as a single spice or extremely complex in many food systems. Some of the more complex flavorings can contain over 100 different ingredients that have various origins. These ingredients can be from microorganisms, plants, minerals, petroleum, or animals as well as synthetic sources. For formulating halal food products, the manufacturer has to make sure that any flavors, proprietary mixes, or secret formulas are halal and free from doubtful materials (Aris et al., 2012; Jahangir et al., 2016). These formulas will need to be reviewed by the halal certifier. They need to know the origin of each ingredient, but do not need

to know the amount of each ingredient used. Even then the halal certifier is expected to maintain the confidentiality of such formulas.

SANITATION

During the manufacture of halal products, it is imperative that all possible sources of contamination be eliminated. This can be accomplished through proper scheduling of products as well as by thoroughly cleaning and sanitizing production lines and equipment. For non-meat products, it is adequate to clean equipment and determine cleanliness by visual observation, that is, the normal expectations of cleaning are usually sufficient. A company might treat haram ingredients similar to allergens and make it part of a control program similar to their allergen control program. Chemicals used for cleaning (especially soaps and foams) should be screened to avoid fats of animal origin. Most kosher certified cleaners meet this standard.

SPECIFIC HALAL GUIDELINES

General guidelines for halal vary somewhat from country to country. The following documents will be helpful to manufacturers of food products for specific markets:

Codex Alimentarius Guidelines for Use of the Term Halal (Appendix A)

Malaysian General Guidelines on the Slaughtering of Animals and the Preparation and Handling of Halal Food

Indonesia Halal Food Laws

Singapore's Halal Regulations and Import Requirements

STATE HALAL LAWS

In 2000, the state of New Jersey passed the Halal Food Protection Act. Minnesota and Illinois followed suit in 2001, enacting their own laws to regulate the halal food industry. These laws address the problem of fraudulent use of the term halal or other such terms to produce and market products that may not be halal. For example, Nimer (2002) contends that some retailers have wrongly placed halal food labels on meat items to attract Muslim customers. The Illinois act, which has the most accommodating language, specifically defines the term halal food as:

being prepared under and maintained in strict compliance with the laws and customs of the Islamic religion, including, but not limited to, those laws and customs of *zabiha/zabeeha* (slaughtered according to appropriate Islamic code) and as expressed by reliable recognized Islamic entities and scholars. [And is therefore probably unconstitutional as per the second circuit court of appeals ruling that was not reviewed by the U.S. Supreme Court.]

This law makes it a misdemeanor for any person to make any oral or written statement that directly or indirectly tends to deceive or otherwise would lead a reasonable individual to believe that a non-halal food or food product is halal.

In 2002, the states of California and Michigan also enacted their versions of a halal food laws. It is anticipated that other states with significant Muslim populations, where legislatures are sensitive to their ethnic voters, will also introduce similar bills. In early 2003, a similar bill was introduced into both the Senate and the House of the state of Texas and was passed. Unless subsequent regulations are passed to implement the laws, the passage of the bills provides a false sense of protection and very little actual benefit is received by Muslim consumers. However, in a few cases they provide the state with the legal right to address halal fraud, although in most cases the general laws dealing with consumer fraud, mislabeling, and similar acts will cover intentional halal fraud.

At the federal level there are no comprehensive halal laws; however, the Food Safety and Inspection Service (FSIS) of the U.S. Department of Agriculture (USDA) has issued a directive for the labeling of halal products. The FSIS directive states that the Food Labeling Division, Regulatory Programs, recently approved a standard that is included in the labeling policy book involving the use of “Halal,” “Halal Style,” or “Halal Brand” on meat and poultry products. They are required to establish that they are prepared under the supervision of an Islamic authority.

Products identified with the term halal must not contain pork or pork derivatives. The Federal Meat and Poultry Inspection does not certify the halal preparation of products, but rather accepts “halal” and similar statements, if the products are prepared under the supervision of an authorized Islamic organization. When “halal” and similar statements are used, plant management is responsible for making the identity of the Islamic organization available to inspection personnel.

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