INTRODUCTION

The word halal comes from the Arabic language meaning “lawful” or “permitted.” It generally refers to things or actions that are permissible or lawful under Islamic law (Al-Hanafi, 2006). Islamic law provides a legal framework for the regulation of public as well as some private facets of life of people living in accordance with Islam (Bonne and Verbeke, 2008). The opposite of halal is haram, which means unlawful or prohibited. Halal and haram are the terms applied to every aspect of life but mostly focused on food products and ingredients, food contact materials, meat products, pharmaceuticals, cosmetics, and personal care products. Muslims must ensure that all of the previously mentioned commodities must be halal. Often these products contain by-products or ingredients from animal sources or ethanol that are not permissible for Muslim consumption (Regenstein et al., 2003).

There are a few things which are not clearly categorized as halal or haram. Such things are often referred to as mashbooh, meaning doubtful or questionable. Further information is needed to categorize them as halal or haram. In the light of the Quran (Holy book of Islam), Hadiths and Sunnah (teachings and actions of the Holy Prophet Muhammad, PBUH), the foods are categorized as halal or haram mainly depending on their sources and the methods of production. All foods from the following sources are considered haram:

1. Swine/pork and its by-products
2. Animals NOT properly slaughtered according to Islamic method
3. Animals dead before slaughtering
4. Carnivorous animals and birds of prey
5. Blood and blood by-products
6. Alcoholic drinks and intoxicants
7. Foods contaminated with any materials mentioned above
Some foods having ingredients like enzymes, gelatin, flavors, and emulsifiers are questionable (mashbooh) as these ingredients may come from a haram source. Utmost care is required in slaughtering and processing of meat and poultry according to Islamic requirements. For the slaughter of animals, this is commonly known as Zabiha or Dhabihah, which refers to the slaughtering of an animal or bird by a Muslim according to Islamic requirements.

Halal slaughter includes the cutting of an animal in a way so it bleeds, bleeding results in the loss of life, and to invoke the name of God while slaughtering (Malaysian Standard 1500, 2009). The specific conditions for zabiha require that the animal must be slaughtered using a sharpened blade so that it does not suffer for a long time (Grandin, 2010). The animal must not see the blade or smell the blood from a previous slaughter. This actually explains the importance of life given by God. Therefore, by uttering the name of God at the time of slaughtering, one implies that the slaughter of the animal is being done at the command of God (Casoli et al., 2005; Micera et al., 2010; Nakyinsige et al., 2012). Conventionally, slaughtering was a manual process, usually known as “hand slaughter,” in which an individual administers the cutting especially for large animals such as cattle and sheep. But this process has been subjected to automation owing to the large volume of animals and chickens that need to be slaughtered in the commercial meat and poultry industry. The automation, mainly for poultry, is called “machine slaughter” and uses an automated knife to do the cutting. The halal industry has grown over the past few years, with increasing demand for halal products from both Muslim and non-Muslim consumers. With increased awareness about food safety, food safety systems like GMP (good manufacturing practices) and GHP (good hygienic practices) are being used along with more attention to the personal hygiene of food industry workers and food handlers (Malaysian Standard 1500, 2009).

The Hazard Analysis and Critical Control Points (HACCP) system is a systematic approach to assure the production of safe and wholesome food by identifying and controlling various hazards (i.e., microbiological, chemical, or physical) that could pose a serious threat to the manufacturing process. The main objective of HACCP is to assure the safety of food materials from farm to fork, that is, from raw material to the end product through identification, evaluation, and control of potential hazards. Basic food hygiene conditions and practices (prerequisites) must be in place prior to implementing a HACCP system (Bas et al., 2006).

**HACCP**

The basic elements and characteristics of HACCP include the following:

1. Identify the potential food safety hazards
2. Determine preventive measures for the hazards identified
3. Implement those preventive measures to enhance food safety
4. Train personnel to identify food safety hazards and implement preventive actions
5. Keep a record of the measures taken
To implement HACCP in a food plant, a comprehensive review of the plant and process is needed that permits the formal HACCP program to be developed and initiated by the following:

1. Conduct a hazard analysis
2. Determine the CCP (critical control points)
3. Establish critical limits for each CCP
4. Establish a monitoring system
5. Establish corrective actions
6. Establish validation and verification procedures
7. Establish documentation to support all of the above items (Figure 31.1)

Halal authenticity is needed to provide consumer confidence and assurance that a food indicated as halal is halal and can be bought without any hesitation. The standards for halal foods and the HACCP system have a common objective, that is, to provide safe and wholesome food. However, the halal food production requires some additional requirements to meet the specific criteria expected including some form of Muslim supervision. After manufacture, the food may not come in direct contact with any mashbooh or haram materials including packaging while it is being handled and transported (Chan, 2008; Soesilowati, 2011). Halal standards and HACCP together can provide a complete system for analyzing any food operation to identify potential food safety hazards and halal violations. The religious violations fall into four categories.

**Haram**

Some foods, such as pork and alcohol are always forbidden. Some objects, foods, or actions that are normally halal can, under some conditions, become haram. Examples include halal foods and drinks consumed during the fasting time of the holy month

**FIGURE 31.1** A simple quality management structure that describes the basic system for the production of all foods.
of Ramadan, and cattle or other halal animals that are not slaughtered in the Islamic way or without the name of Allah (God) being invoked.

**Najis**

Food should not contain any ingredients that are najis (unclean) according to Islamic law.

**Mashbooh**

Foods that are labeled as “mashbooh” should normally be avoided.

**Makrooh**

In Islam, the word “makrooh” is defined as anything that is undesirable or inappropriate. Muslims believe that makrooh foods are determined by their own innate sense of right and wrong. For example, most Muslims consider it makrooh to eat the meat of a horse, donkey, or mule.

**HALAL HACCP IMPLEMENTATION WITH HALAL PRODUCTS**

In addition to critical control points (CCP) in HACCP, it is often beneficial to establish a set of halal control points (HCP) that operate in parallel to the HACCP system, which is often required by secular law. These HCP should be designed to monitor, control, and remove any halal violations. Potential religious issues can be categorized into two sections: Tolerable and non-tolerable. Potential hazards that cannot be tolerated include stages or points in slaughtering or processing that clearly contradict the requirements of Islamic law. Examples of hazards that cannot be tolerated include: the presence of meat, fat, gelatin, or any other part of a pig; the presence of gushed blood in a manufactured product; the absence of acceptable religious cleansing (taharah) of production lines; and the use of stunning that led to the death of an otherwise halal animal or the method of slaughter of the animal was not in accordance with the prescribed conditions for halal slaughter (Karaman et al., 2012).

Potential religious issues that can be tolerated include forgetting (non-deliberately) to utter the name of Allah at the time of slaughter of an animal (in some schools) and forgetting to direct the bird or animal at the time of slaughter toward the Qibla (it is the direction a Muslim face when prays). These HCP can as a practical matter be incorporated into the company’s HACC management system. The identification of the HCP follows the same procedures as were used to determine the CCP. Thus, the HCP is defined as a point, step, or procedure in halal food production manufacturing at which a control can be applied and, as a result, halal food cross-contamination can be prevented or eliminated. Some practical guidance for a successful halal production system include:

- Halal and non-halal ingredients should be separated and stored in dedicated areas
- Cases/packages of a halal food products should not be placed on the same pallet as non-halal products
HACCP and Halal

• Processing of halal product without appropriate cleaning after production of non-halal product results in cross-contamination
• Addition of a non-halal ingredient (e.g., lard, non-halal gelatin) into halal products must be avoided
• Rework of non-halal products is not allowed. The common steps in creating both a HACCP program and halal control program include:
  • Assembling a HACCP/food quality team
  • Discussing the description of all products including which are and which are not halal
  • Identifying intended use
  • Constructing a process flow diagram
  • Conducting an on-site verification of the flow diagram

One then uses this information as previously for HACCP:

1. Identify and analyze all possible hazards or halal issues
2. Determine CCP and HCP
3. Establish control measures
4. Establish a monitoring system for all CCP and HCP
5. Establish corrective action for deviations that may occur
6. Establish validation and verification procedures
7. Establish record keeping and documentation including the disposal of product after an HCP failure

Like HACCP, the halal program needs appropriate documentation such as:

• Product description and halal ingredient specifications
• An HCP decision form
• Monitoring and corrective action form
• Record keeping and verification form
• Validation form and verification documentation
• A halal program summary form is recommended
• Additional forms—as necessary for various type of food processing operations

A Basic Structure for Halal Process Control

It is particularly important that the halal processing control system be in place for plants producing both halal and non-halal products in the same area. The basic job of a halal certification body is to ensure and certify that all the ingredients and production methods being used are halal, which permits such companies to serve both their domestic market and the export market with confidence. Halal foods are also becoming popular among non-Muslims who are health-conscious and want to eat halal products owing to the fact that these products are manufactured in a clean environment and in a sympathetic manner with respect to the treatment of animals at slaughter. Adding a halal control program to a HACCP program gives an additional layer of protection for those wishing to consume halal food products. Therefore,
HACCP coupled with halal standards can become a very effective approach for the halal industry, providing the consumers with halal food having higher standards of safety and quality (Bas et al., 2007; Karaman et al., 2012).

REFERENCES


