28 Potential Hazards and Sanitation of Halal Facilities

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Halal means permitted and wholesome means good, healthy, safe, clean, and nutritious. The concept of wholesome means morally good: promoting the health and well-being of the mind or spirit, and of the body. Islam teaches about the importance of cleanliness in every part of life, including during food preparation and processing. According to one hadith, cleanliness is half of the Muslim faith. In fact, today’s halal consumers are more concerned about halal food quality and safety than ever before (Ismail and Phoon, 2007). Although the Muslim food supervision organizations have always monitored compliance with the halal food system, adulteration, contamination, and other hazards continue to be detected with laboratory tests (Wahab, 2004).

In general, there are four potential types of hazards in the halal food manufacturing process (as is true for all food production): physical, chemical, biological, and allergenic. A physical hazard is any extraneous object or foreign matter in halal foods that may cause illness or injury to the consumer. These foreign objects may include, but are not limited to, bone or bone chips, metal flakes or fragments, injection needles, pieces of product packaging, stones, glass or wood fragments, insects or other filth, personal items, or any other foreign material not normally found in halal food. Such contaminants may come into the plant with raw materials, may fall into foods from badly maintained facilities and equipment, or may reflect poor employee practices.

Chemical hazards can occur at any point in the food chain. When toxic chemicals are used for pest control or for cleaning and sanitizing food contact surfaces and these surfaces come into contact with food, the food may be contaminated with those chemicals. Toxic metals used to make the production equipment can be a source of chemical contamination. Gray enamelware containers may be plated with anatomy or cadmium that can make acidic foods such as orange juice, tomato sauce, or pickles poisonous. Pottery dishes with lead glazes should not be used to prepare or serve food.

Microbiological hazard occurs when food becomes contaminated with microorganisms found in the air, food, water, soil, animals, and the human body. Many microorganisms are helpful and necessary for life. However, given the right conditions, some microorganisms may cause a foodborne illness or spoilage. Microorganisms commonly associated with foodborne illnesses include bacteria, viruses, and parasites.

Food allergen hazards can be a significant health risk to those consumers who have allergic reactions to specific foodstuffs. The challenge is to prevent any allergens not being used in a particular product from becoming part of that product.
All of these hazards may be monitored and controlled by applying different food standards and guidelines such as Good Manufacturing Practices (GMP), Hazard Analysis Critical Control Points (HACCP), the British Retail Consortium (BRC) standards, the Global Food Safety Initiative (GFSI) standards, International Standards Organization (ISO) standards, and Codex Alimentarius (Codex) international food standards (FAO/WHO) (Talib et al., 2008). For example, Codex currently has 49 different guidelines for different food products each including hygienic practices. Standard and Industrial Research Institute of Malaysia (SIRIM), have devised a comprehensive halal food standard named MS1500:2004 to help the food manufacturers to monitor, control, and provide guidance for processing of products to satisfy HACCP, Islamic law, and GMP. According to Janis (2004), the MS1500:2004 lays out comprehensive requirements according to Islamic law and also the requirements for food manufacturing and foodservice supply chains from processing to handling, distribution, storage, display, servings, packaging, and labeling. The aesthetic aspects, hygiene, sanitation, and food safety are also included as part of the requirement (Janis, 2004). Most of the developed countries and international food companies follow very strict rules for producing clean and wholesome foods. For example, Cargill, DuPont, and Nestle have their own guidelines for wholesome and clean foods. They are committed to never violating any rule that jeopardizes the safety or cleanliness of food. Whereas it may be a major issue for food companies in the emerging economies to produce wholesome foods. Sometimes, food companies in the emerging economies do not have enough resources to follow the wholesome rules for foods. Regulatory agencies may not strictly enforce the guidelines for producing clean and wholesome foods in some countries. Some companies may not understand the importance of cleanliness during the production of halal foods. These companies need to learn more about the hazards in food beyond the issue of contamination of halal foods with non-halal ingredients. According to a FAO (2015) report, 70% of deaths among children under 5 years of age were linked to contaminated foods in less developed countries (FAO, 2015).

With globalization, the internet, trade, and other advancements, our food supply is now global. That means anyone from anywhere can order any food at any time to be consumed anywhere in the world. That creates a challenge to produce wholesome and clean foods all over the world. The halal food industry needs to consider some additional hazards to assure that foods are wholesome. These can be identified as religious food hazards. One of the most serious hazards is cross-contamination with non-halal food ingredients. The focus should always be on avoiding non-halal ingredients (Bonne and Verbeke, 2008). During processing of halal and wholesome food, the focus should always be on avoiding non-halal ingredients (Khawanjah, 2001). This contamination can occur through hidden ingredients like lubricants, releasing agents, antifoaming agents, filtering agents, clarifying agents, and bleaching compounds; all being examples of processing aids that are not disclosed on the consumer label. Many of these ingredients may contain non-halal ingredients often from pork and its by-products. According to Meindertsma (2009), there are approximately 185 different products and ingredients that are made from pork and its by-products such as the blood, bones, and hides. One of the ingredients is the enzyme that is extracted from pork stomachs (porcine pepsin). This one enzyme can be used in making...
and processing of hundreds of food products (Omojola et al., 2009). According to Sustainable Swine Resources (2017), no other animal provides society with a wider range of products than the pig. It provides a vast array of high quality pig co-products that are used as sustainable resources in many human and animal industries. These industries include, but are not limited to, medical, human health, industrial and consumer, companion animal, and animal health companies. Products from the pig such as the pancreas, spleen, thyroid, trachea, and kidney are further processed into supplements for both human and animal consumption (Nuruddin, 2007). There are over 40 pharmaceuticals and medicines that are derived from pig co-products (Sustainable Swine Resources, 2017). Food becomes religiously unacceptable when contaminated with pork or its ingredients. Contamination of a halal product can occur by directly touching pork meat to the product, by not washing hands and then touching a halal meat product, by using the same surfaces, such as cutting boards or cleaning cloths that have not been cleaned after non-halal food handling, and by non-halal foods drippings on or touching halal foods.

An additional concern for managers of halal-certified plants is the prevention of cross-contamination of halal products with non-halal products. Examples of non-halal products are pork, the meat of carnivores, and alcohol. Although cross-contamination with non-halal product is not necessarily a public health hazard, this kind of contamination nullifies the halal status of the product and may reduce its value as a consumer product. Fortunately, there is a vast array of information available to food producers to help them produce food products that are safe to eat and properly certified as halal. Therefore, effective cleaning and sanitation procedures are essential for every halal food processing establishment. In halal-certified food production areas, additional precautions should be considered to help prevent contamination with non-halal substances. It is recommended that rooms or compartments in which halal products are processed, handled, or stored are separate from rooms or compartments in which non-halal products are processed, handled, or stored.

If a business processes both halal and non-halal foods, halal products should be processed before non-halal products when using the same facilities and equipment. The rational for this order of operation is clear: such practices greatly reduce the likelihood of halal products being exposed to non-halal products. If comingling does occur, a product can no longer be classified as halal. If halal products are processed with equipment that has previously been used to produce non-halal products (such as meat from livestock not slaughtered under halal conditions), complete pre-operation sanitation procedures must be done before halal products are processed. As stated earlier, halal products that have been cross-contaminated with non-halal products may no longer be certified as halal.

Regarding the safety of food—rather than halal status—the U.S. Department of Agriculture (USDA) Food Safety and Inspection Service (FSIS) regulates meat, poultry, and processed egg products for safety and wholesomeness. Regulatory requirements under the Federal Meat Inspection Act, the Poultry Products Inspection Act, and the Egg Products Inspection Act can be found on the USDA website (www.fsis.usda.gov). Similarly, the Food and Drug Administration (FDA) regulates foods other than meat, poultry, and processed egg products, such as fruits, vegetables, seafood, and grains. Their website is www.fda.gov. FDA’s jurisdiction extends even further
to include nutritional supplements, energy drinks, flavorings, vaccines and pharmaceuticals, and cosmetics. Many of these products are discussed in other chapters of this book.

REFERENCES


