This chapter deals with dietary and nutritional supplements containing nutraceuticals, vitamins, minerals, and other nutritional products used to enhance and maintain health and wellness or prevent disease. The lines between pharmaceuticals, products that heal, and nutraceuticals, products that help maintain the well-being of a person, are merging. The purpose of this chapter is not to determine the effectiveness of these products but to reflect on their compositions and determine whether any of the components presents a problem for the Muslim consumer.

“Halal Pharmaceuticals” is soon going to be a multimillion dollar industry according to an estimate of the pharmaceutical business (Khan and Shaharuddin, 2015). Although in the Islamic tradition, one may consume a haram product as a medicine under compulsion, Muslim consumers generally avoid knowingly taking anything that is haram or doubtful. Some people may take prescription medicine in a gelatin capsule but not a multivitamin capsule (Al-Qaradawi, 2007). Gelatin capsules, unless certified halal or labeled bovine, are generally made of pork gelatin. Pork gelatin is considered haram by Muslim consumers (Aziz et al., 2014). Medicine that is used to cure disease and help overcome illness is considered exempt from halal food regulations.

The majority of pharmaceuticals contain ethanol and animal derivatives and hence cannot be certified as halal, so they need to be prepared using some alternative ingredients and methods according to Islamic law to make them halal (Sarriff, 2013). Prescription drugs generally do not have alternative products to replace a prescribed drug. If a drug is available in capsule form only, one is obligated to take it, whereas multivitamins are normally not taken to cure serious illness, but to improve one’s health. Moreover, there are many alternative forms of multivitamins, such as tablets, liquids, and vegetable capsules, so one does not have to take vitamins in gelatin
capsules. Many consumers try to purchase alcohol-free products such as cough syrups (Charles et al., 2011). They can also ask the pharmacist for tablets rather than gelatin capsules. The Malaysian Department of Health, for example, has determined that nutritional supplements are health and medication products and may not be grouped together with food products. It is against the local regulations to display halal markings on such products. Many Muslim consumers are very apprehensive of this regulation (Ramli et al., 2012). Indonesian authorities, on the other hand, are including not only foods but also drugs and cosmetics in their halal program, which is evident by the creation of an institute, the Assessment Institute for Foods, Drugs, and Cosmetics (AIFDC), under the guidance of the Religious Council of Indonesia, also called the Majelis Ulama Indonesia (MUI). AIFDC is responsible for assessing, evaluating, certifying, and monitoring establishments and products including foods, drugs, cosmetics, personal care products, and other consumables. AIFDC insists on using logos or proper halal markings on labels of certified halal products or ingredients. Moreover, the Food and Drug Administration (FDA) is the U.S. agency that supervise food safety, medications, cosmetics, veterinary and medical products, and so on. They have the responsibility to oversee the food safety, wholesomeness of human and veterinary drugs, sanitary conditions for the accomplishment of effective and hygienic biological and medical devices and cosmetics, and to maintain a check on electronic devices that emit radiation that can be hazardous to human health (Meaning of FDA, 2011). The GMP for manufacturing, processing, packing, or holding finished pharmaceutical products was first published in 1963 (Immel, 2001).

General guidelines for the production of nutritional supplements are similar to producing other food products. Nutritional food supplements, for the most part, are composed of botanicals and plant extracts. It is the animal-derived ingredients one has to avoid in formulating the supplements (Al-Akili, 1994).

**INGREDIENTS TO WATCH**

Databases of ingredients can often comprise thousands of entries. Companies might use several thousand different ingredients in a given time period. It is beyond the scope of this book to describe the halal status of every ingredient used in the industry. Only some of the ingredients with potential concern for halal are given here.

- **Flavors and colorants:** Might have hidden alcohol or ingredients of haram animal origin, such as civet oil, ambergris, and castoreum in the formulations (Uhl, 2000).
- **Beta-carotene:** Often formulated with gelatin in small quantities. Gelatin is used to encapsulate and protect its color and other characteristics. Some companies use fish gelatin for encapsulation, which makes the product halal as well kosher. Manufacturers also use halal bovine gelatin or plant gums to encapsulate b-carotene.
- **Gelatin:** Very commonly used to make capsules, both softgel and two-piece hard shell. Halal gelatin or cellulose or starch can be used instead of porcine gelatin or gelatin from non-halal-slaughtered animals that could be halal (Shah and Yusof, 2014).
• **Stearates**: Can be used as free-flow agents in powders or tableting aids in tablets. For halal products, manufacturers can use stearates from plant not animal sources (Shabana and Acunova, 2013).
• **Tweens**: Sometimes used for coating and polishing tablets. Vegetable-derived tweens rather than animal-derived ones should be used in halal products.
• **Glycerin**: Used in the manufacture of capsules and it may also be used in other products. Glycerin of plant origin is halal suitable for such applications (Grundy et al., 2007, 2008).

**TYPES OF PRODUCTS**

Nutritional food products come in many physical forms such as powders, liquids, tablets, one-piece capsules (soft shell), and two-piece capsules (hard shell). Nutraceutical ingredients can also be incorporated into foods.

• **Tablets**: Can be coated with gelatin (gel tabs) or with specialty lipids such as polysorbates. Halal-certified gelatin and lipids of plant origin should be used for halal tablets. Sugars and plant proteins can also be used as coating material for tablets in halal products.
• **Liquid supplements and drinks**: Many liquid formulations are standardized with ethyl alcohol as a preservative or solvent. Alternatives such as mixtures of propylene glycol and water can be used. The amount of alcohol in the finished product may not be more than 0.1% as discussed in Chapter 16.
• **Softgel capsules**: One-piece capsules used to be made exclusively from gelatin. They can now also be made using vegetable ingredients. Halal-certified bovine and fish gelatins are also available for this purpose. Besides the main ingredient, softgel capsules might also contain glycerin or fatty chemicals, which should be from plant sources for halal production (Nasaruddin et al., 2012).
• **Hardgel capsules**: Like softgels, two-piece hardgel capsules used to be made exclusively with gelatin. There are now vegetarian capsules especially for nutritional supplements. Glycerin and other ingredients can be used as processing aids. All such ingredients should be from vegetable or petroleum sources. Two-piece gelatin capsules, if used, should be halal-certified bovine gelatin or halal fish gelatin and other incidental ingredients should also be halal suitable.

To ensure almost universal acceptability, it is recommended that pharmaceutical products and nutritional and dietary food supplements be manufactured by avoiding all traces of slaughtered animal products, so that the product is acceptable for halal, kosher, and vegetarians or vegans.

**REFERENCES**


