

CHAPTER I

1.0 INTRODUCTION

The world today is facing several major challenges, among others; one of it is to provide a choice of healthy processed or ready-to-eat foods to many consumers (Roberfroid, 1999). Food is an essential need to sustain human beings. The new inclination for eating of healthy, novel and convenience food, which has occurred lately, has led the market to the production of functional foods. Functional foods are known to be foods that supply health benefits beyond basic nutrition that has an impact on health or desirable physiological effects on human systems through their biologically active constituents (Nelson, 2012).

The market for functional foods is increasing at a yearly rate of 15-20% (Hilliam, 2000). A functional food may be natural or obtained by excluding or modifying one or more of its basic constituents (Perez-Alvarez et al., 2003). Recent years have witnessed upward interest on the part of consumers, the food industry, and researchers into food and the ways in which it may help maintain human health. The crucial task that diet plays in preventing and treating illness is widely accepted.

Hasler (1998) and Milner (1999) reported that the development of functional foods is a great opportunity and also a contribution to the improvement of the food quality for consumers' health and well-being. In recent years, consumers demand in the aspect of food product development has changed significantly. Because of this, foods today are not intended only to provide satiety and to provide necessary nutrients; they are also consumed to prevent nutrition-related diseases (Brouns & Vermeer, 2000). The

functional foods offer an outstanding opportunity to improve the quality of products (Betoret et al., 2011).

Snacks, namely crackers, cereal bars, chips etc. are consumed in between usual meals. These snacks are regarded as part of human diet because their consumption has been on increase lately in several countries. Snack foods sales are now estimated to be between USD 30-35 billion yearly worldwide (Peksa et al., 2010; Becker et al., 1986). Development of novel snacks is imperative for food industry because the consumers always get used to the taste of the product at the end of the day and tend to search for new tastes; therefore, development of cereal bar product with *Sumah* ingredients and fruits with some functional components need to be conducted (Yüksel et al., 2014; Rababah et al., 2011; Izydorczyk et al., 2005; Mendonca et al., 2000; Onwulata et al., 2000). Cereal bar, also known as “granola” is a combined cereal based-food product typically eaten as a breakfast cereal which contains natural ingredients such as oats, nuts and honey. It generally shows a high degree of friability (Bas et al., 2011).

Therefore, cereal bar is an example of functional foods because cereal bars is regarded as the food that combine nutrition with convenience. It has gained acceptance because of its contribution to human nutrition as dietary fibre food. Cereal bars are nutritious; they are more often than not made by using a base of grains such as oats, rice, and/or proteins from pulses and legumes. These bars may be fortified with several minerals, herbs, vitamins and other nutritive elements (Gonzales & Draganchuk, 2003). Fruit-based cereal bars are introduced into the market because of the need to have a product for nutritional quality and ease access that will provide the snack prerequisite between meals and/or for energy (Ryland et al., 2010).

Cereal bar is a versatile snack that is attractive to consumers. They can be consumed with yoghurt, milk, ice-cream or alone. Moreover, incorporation of cereals in fruit bars can lead to the production of nutritious products that will be produced according to the consumer requirements (Maurer et al., 2005). Fruit-based cereal bars are excellent source of fibre, energy, vitamins, antioxidants and minerals (Anderson et al., 2000). Cereal bars are wholesome (healthy); an excellent source of carbohydrate which aids the revitalization of energy after exercises when used as food enhancement (Brito, 2005).

At present, conventional methods have been used by to produce cereal bars. Banana formulated cereals bars (Freitas & Moretti 2006); jackfruits and jenipapo formulated cereal bars (Torres et al., 2011). Gutkoski et al. (2007) developed cereal bars from oat and nuts while Santos et al. (2011) elaborated a homemade cereal bar with jackfruits. However, in this research, *Sunnah* foods will be used. These *Sunnah* foods include dates, figs, raisins, saffron, black cumin and honey. All these *Sunnah* foods have health benefits (Wargovich, 2000; Prior & Cao, 2000; Dillard & German, 2000; Joseph et al., 1999; Fuhrman et al., 1995). Therefore, the project aimed to formulate cereal bars made from *Sunnah* ingredients with functional properties.

It has been observed that processing of *Halal* and *Sunnah* foods has not received much attention. The Prophet Muhammad (PBUH) said in a Hadith: "*Truly in the body there is a morsel of flesh which, if it be diseased, all of it is diseased. Truly it is the heart*". (Narrated by Muslim). This is an indication that Allah (SWT) commands us to have *Halal* diet in our daily life.

Allah (SWT) also gives us the applicable laws especially, in relation with foods and diets which will certainly not lead to any ambiguity, pain or sickness. Health is another feature implied in all the aspects of Islam. Anything *Halal* guide us to good health, free from disease and suffering; several years ago, Islam talked about the relationship between diet and disease by encouraging the *Halal* (lawful) diet and drink.

The increase of *Halal* awareness has created many discussions among consumers leading to adherence of consumption or use of *Halal* products. The industries are now competing with each other in producing and marketing of *Halal* products to fulfill consumers' need, as well as Allah's ordainment. Six types of *Sunnah* foods are employed in this research for the formulation of the cereal bars; dates, figs, raisins, saffron, black cumin (*Habbatus Sauda*) and honey. Dried dates, figs and raisins possess excellent carbohydrate and calories from these fruits promote the nutritional contents of the cereal bar (USDA, 2007).

The food packaging industries have a key role to play in the determination of the shelf stability of foods because they act as oxygen barrier; addition or removal of moisture to foods (Sharma et al., 1990; Khan et al., 2008). Suitable selection of a packaging material is most fundamental to ensure optimum quality of the product upon storage to prevent oxidation of lipids and deterioration of the food products (Seacheol & Zhang, 2005).

1.1 PROBLEM STATEMENT

Currently cereal bars are produced from almonds, peanut and hazelnut, among others. Fruits like dried dates, dried figs, black cumins and raisins are mentioned in the Quran

for their health benefits; dates contain fibres and black cumin has antioxidants that help in preventing colon cancer and cardiovascular diseases. Therefore, nutritionists have been searching on how to combine these fruits to make a wholesome product that will be beneficial to the health.all. Cereal bar is an example of food that combines the ingredients in different variation and proportion. Most cereal bars are produced using sugar which makes them to be hard and not chewy. In this study, honey and glucose syrup was used as binding agents. Honey will provide more nutrients to the product as it also has medicinal purpose. At present cereal bar has a short life and therefore, suitable packaging materials should be studied.

1.2 AIM OF STUDY

The aim of this study was to formulate cereal bar from selected *Sunnah* fruits and determine suitable packaging materials for the product.

1.3 OBJECTIVES OF STUDY

The objectives of this study were:

1. To determine the physicochemical properties of cereal bar made from selected *Sunnah* foods.
2. To evaluate the acceptability of cereal bar made from selected *Sunnah* foods.
3. To investigate the most suitable packaging material to preserve the quality of cereal bar made from selected *Sunnah* foods upon storage.