



FUNCTIONAL FOOD, ITS CONCEPT AND SIGNIFICANCE IN COMBATING VARIOUS DISEASES: A SYSTEMATIC REVIEW

Medical Science

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ABSTRACT

The concept of functional food was proposed by a Japanese academic society in the early 1980's and the legislation for the functional food was first implemented as FOSHU (Food For Specified Health Use). The objective of the present systematic review is to have a clear concept of functional food along with its significance in terms of various diseases. According to several studies foods have special biological effects other than ordinary nutritional effects. To know the various health benefits of functional food its very important first to have a clear concept of it. A functional food is said to be functional if it contains bioactive components that benefits an individual either by reducing risk of diseases or by acting in the body in a way that is relevant to the state of his/her well-being. According to International Food Information Council "functional food provides health benefits beyond basic nutrition". This paper reviewed concept of functional foods and highlighted various health benefits of such foods in combating several diseases.

KEYWORDS

Bioactive components, bone protective, gingival infection, probiotics

INTRODUCTION

Functional food are also known as 'Designer food', and 'fortified food'. A food can be regarded as functional if it is satisfactorily demonstrated to affect beneficially one or more target functions in the body, beyond adequate nutritional effects, in a way which is relevant to either the state of well-being and health or the reduction of the risk of a disease[1]. Functional foods represent one of the most intensively investigated and widely promoted areas in the food and nutrition sciences today[2]. Consumer interest in the relationship between diet and health has increased the demand for information on functional foods. The use of functional foods or dietary supplements may offer opportunities to reduce health risk factors and risk of diseases, both as [monotherapy](#) and in combination with prescription drugs[3]. There are many evidences that functional foods are beneficial for different diseases. Functional foods like probiotics, prebiotics, and cultures-added dairy foods have health promoting properties[4].

CONCEPT

Recent advances in biosciences support the hypothesis that diet modulates various body functions. Diet may maintain well-being and reduce the risk of some diseases. Such discoveries have led to the concept of "functional food" and the development of the new discipline, i.e. "functional food science." A practical and simple definition of a "functional food" is *a food for which a claim has been authorized*[5]. Functional foods, also known as "nutraceuticals" or "designer foods" are foods containing supplements that are intended to improve health[6]. Any food can be regarded as functional if it can be affect beneficially one or more target functions in the body or reduce disease risk besides basic nutrition and if its health beneficial properties suggest its application as self-care and complementary medicine[7]. Health conscious consumers tend to discount messages about the health value of functional food and show preferences for organic food[8]. There is low correlation between health orientation and functional foods perception[9]. Functional food is a promising and dynamic part of the food industry that is rapidly evolving thanks to a better understanding of the close connection between diet and health[10]. The results of a study indicate that there is a relationship between consumer's cultural values and their functional food perception. Functional food perception depends upon the consumer's predisposition towards their culture, their motives for functional food consumption and the level of perseverance towards functional foods[11].

SIGNIFICANCE OF FUNCTIONAL FOOD IN COMBATING VARIOUS DISEASES

Beyond meeting nutrition needs, diet may modulate various functions in the body and play detrimental or beneficial roles in some diseases[12]. From a study it was found that Functional foods that enhance satiety may have an important practical application in

increasing compliance to weight loss diets and thereby promoting sustained weight loss[13]. In another study the beneficial phytochemicals, antioxidant activity and health effects of eggplant are discussed[14]. Further in a study it was stated that functional foods-based diet may be a novel and comprehensive dietary approach for management of type 2 diabetes[15]. Lycopene a carotenoid, found mainly in tomatoes, has antioxidant, anti-inflammatory and chemotherapeutic effects in cardiovascular or neurodegenerative diseases and in some cancers[16]. Another study suggests that milk has protein, bioactive peptides, conjugated linoleic acid, omega-3 fatty acid, Vitamin D, selenium, and calcium that act as anti-inflammatory, anti-tumor, antioxidant, hypocholesterolemic, immune boosting, and antimicrobial activities[17]. Compounds in onions have been reported with a range of health benefits, including anticancer properties, antiplatelet activity, antithrombotic activity, antiasthmatic activity, and antibiotic effects[18]. It has been found that black raspberry food products are suitable for long-term cancer prevention studies[19]. Flaxseed oil, fibers and flax lignans have potential health benefits such as in reduction of cardiovascular disease, atherosclerosis, diabetes, cancer, arthritis, osteoporosis, autoimmune and neurological disorders[20]. As confirmed by a study amaranth sprouts can serve as a moderate source of antioxidant compounds[21]. In a study it was found that there is a close connection between increased tomato consumption and reduced risk for both cardiovascular disease and prostate cancer[22]. The functional foods help in achieving optimal physiological metabolism and cellular functions helping the body to come out of these crises. The mechanism of the functional foods is envisaged to act via optimizing vitamins, minerals, essential amino acids, prebiotics and probiotics[23]. Another study shows health benefits attributed to buckwheat like plasma cholesterol level reduction, neuroprotection, anticancer, anti-inflammatory, antidiabetic effects, and improvement of hypertension conditions along with possessing prebiotic and antioxidant activities[24]. Functional foods can effectively reduce plasma LDL cholesterol levels by about 5 to 25%, either alone or in combination[25]. Studies show that ginger has potential to treat numerous disorders including cancer due to its anti-inflammatory and anti-oxidant properties[26]. A review showed that sesame oil has cardioprotective properties[27]. Okra has shown several potential health beneficial effects on some of the important human diseases like cardiovascular disease, type 2 diabetes, digestive diseases and some cancers[28]. Further a study indicated that regular consumption of flaxseed by native American postmenopausal women reduced their risk of cardiovascular disease[29]. The antimicrobial activity of pumpkin has many applications, including preservation, pharmaceuticals, alternative medicine and natural therapies and has many health benefits[30]. Similarly anticarcinogenic effect, anti-microbial effect and antioxidant property of garlic have shown several health benefits[31]. Further it has been seen that guava leaves extract manages gout and hypertension and

attenuates the oxidative stress associated with both diseases [32]. Raisins have shown the potential to reduce the risk for developing diabetes or cardiovascular disease[33]. White tea consumption improves prediabetes-induced reproductive dysfunction[34]. Likewise soybean isoflavones have received a great deal of attention for their preventive roles on bone metabolism and safety[35]. Oat consumption may be a beneficial dietary intervention for reducing fat accumulation, augmenting health span, and improving hyperglycemia-impaired lipid metabolism[36]. A study showed that low dose of almonds (10g/d) consumed before breakfast can increase HDL cholesterol[37]. Consumption of oats has antiatherogenic properties[38]. Studies demonstrate that consumption of cocoa rich in flavanols, promotes cardiovascular health[39]. A mixture of wide range of phytochemicals with a plethora of biological activities present in whole plant-derived foods could have additive or synergistic effects against breast cancer[40].

CONCLUSION

This review paper explored various concepts of functional foods by different authors. It also focused different functional foods and the bioactive compounds present in these as well as their potential health, both physical and mental, benefits in combating different diseases.

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