

Functional Food Categories

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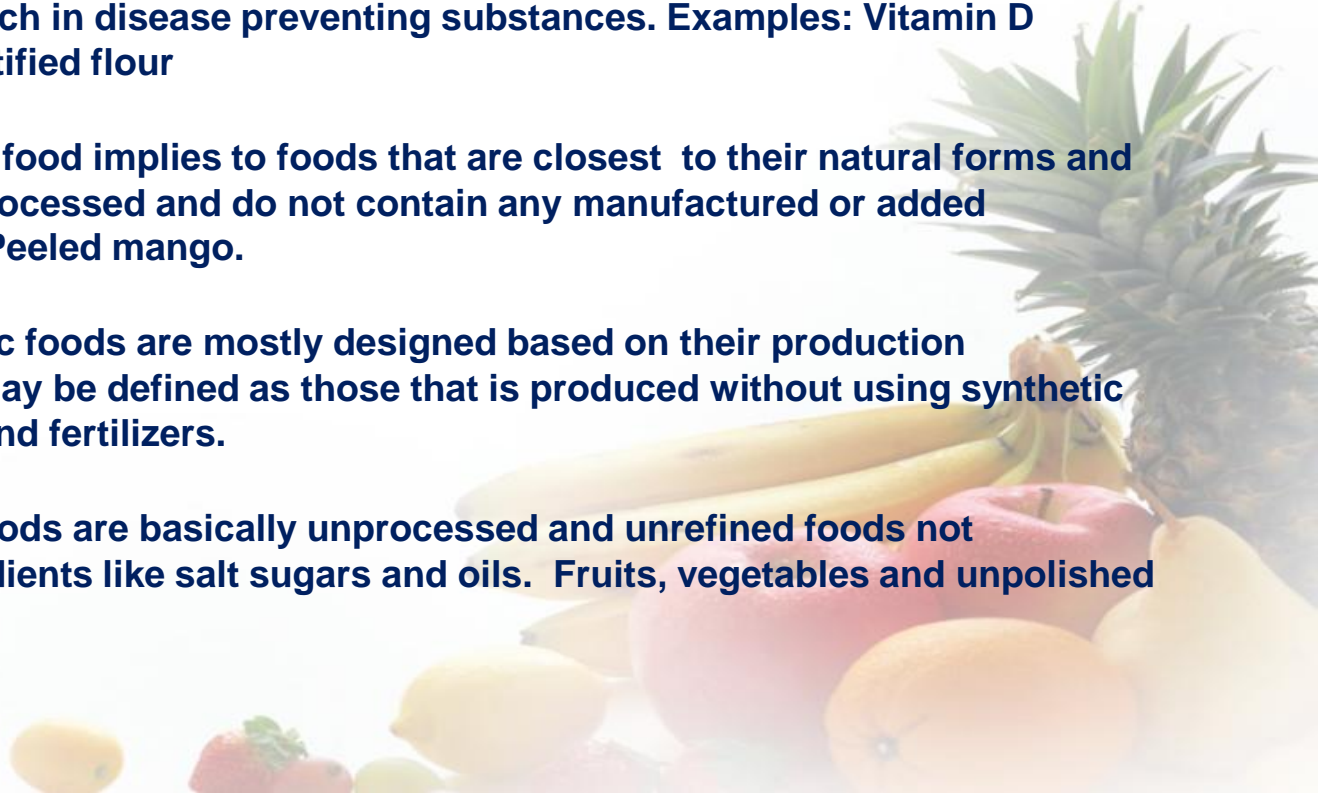
TYPES OF FOODS

Designer foods/pharma foods: These are specialized foods supplemented with the functional ingredients rich in disease preventing substances. Examples: Vitamin D fortified milk and Ca fortified flour

Natural Food: Natural food implies to foods that are closest to their natural forms and properties, minimally processed and do not contain any manufactured or added ingredients. Example: Peeled mango.

Organic Food: Organic foods are mostly designed based on their production techniques foods and may be defined as those that is produced without using synthetic inputs i. e. Pesticides and fertilizers.

Whole food: Whole foods are basically unprocessed and unrefined foods not containing added ingredients like salt sugars and oils. Fruits, vegetables and unpolished food grains



TYPES OF FUNCTIONAL FOODS

- Functional foods can be classified into two main classes :
- **Basic/natural functional foods:** These are the foods that naturally contain biologically active , non –nutrient compounds' (high concentration) that provide health benefits. These compounds are mostly phytochemicals .
- **Formulated foods:** This category includes the food products specially formulated to have higher amounts of the phytochemicals than that would naturally occur in a product.
- Example is high fibre bread

TYPES OF FUNCTIONAL FOODS

1. A food that **naturally** contains sufficient amounts of a beneficial nutrient or non-nutrient component. **Example** : Oats (β -glucan)
2. A food in which one of the components has been naturally **enhanced** through special growing conditions, new feed composition. **Example**: Eggs with increased ω -3 content achieved by altered chicken feed.
3. A food with a **modified** recipe formulation that incorporates a functional ingredient. **Example**: Margarine fortified with plant sterols
4. A food in which the nature of one or more components or their bioavailability in humans has been **modified** by means of specialized food processing technologies. **Example** : fermentation with specific bacteria to yield bioactive peptides.
5. A food from which a **deleterious** component has been removed, reduced or replaced with another substance with beneficial effects . **Example**: Chewing gums sweetened with xylitol instead of sugar

Conventional
Foods



Modified
Foods

Fortified
Enriched
Enhanced

Foods High in Folate



Fortified bread, cereals and rice

Beans Orange juice Spinach



Medical Foods

Phenylketonuria (PKU) form
free of phenylalanine



Foods for special
dietary use

Infant foods, weight loss foods, gluten
free foods, and lactose free foods



Types of functional foods on the basis of health claims

- Functional foods are of two types:
- **Structure and functional claims**; which describes effects on normal functioning of the body, but not claims that the food can treat, diagnose, prevent, or cure a disease [claims such as ‘**promotes**’ regularly; helps maintain the cardiovascular health and supports the “**immune system**”
- **Disease –risk redirection claims**, which imply a relationship between dietary components and a disease or health conditions.



Development of Functional Food Products

Changing the proportion between macro-nutrients like protein, fat and carbohydrates with emphasis on reducing the fat content, leading to the development of **low-fat products**.

1. **Diet Butter**
2. **Reduced Fat Milk**
3. **Fat- Free Yoghurt**
4. **Low- Fat Cheese**

LOW-FAT PRODUCTS


Health issue:

Fat has the largest content of calories of the macro nutrients and if the diet constitutes of more calories than used \Rightarrow obesity \Rightarrow high blood pressure, diabetes, atherosclerosis and some forms of cancer.

Health claim:

A diet with low or reduced energy intake can contribute to a smaller risk of obesity

Functional Food Products Development

1. The proportion between macro-nutrients like protein, fat and carbohydrates  low-fat products are important to reduce obesity
2. Carbohydrate modified products with low glycemic index to reduce the occurrence of the metabolic syndrome
3. New food products enriched with antioxidants, such as carotenoids and polyphenols, to reduce oxidative damages on cell membranes, functional proteins and DNA

Functional Bread

Formulation and Shelf Life Study of Bread by Incorporating whey Using Modified Atmospheric Packaging (MAP)

Conclusions: Concentrated paneer whey with 25%TS could be effectively used in the production of bread by incorporating upto 40% banana flour and 60 % wheat flour

Two gas compositions were used i.e. 98% N₂ and 50% N₂: 50% CO₂

Concentrated paneer whey could successfully be used in the production of bread



(Priyanka Arya & Amrita Poonia, 2017)

Book Chapter No.7

Functional Foods: Sources and Health benefits (2017). Prebiotics, Probiotics & Synbiotic Foods. Scientific Publishers ISBN: 978-93-86237-00-2 , pp,177-199

PREBIOTICS, PROBIOTICS & SYNBIOTIC FOODS

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Functional Food Trends In USA (*Sloan, 2014*)

Functional Food Trends	Description of consumers priorities
Specialty nutritional -digestive health	Fortified foods – more vitamins, minerals, herbs/botanicals, fish/oil/omega3-s, probiotics
Get real	Organic foods/beverages, absent of artificial ingredients, unprocessed/less processed foods
Beauty-enhancing foods	Natural/organic foods/drinks - energy drinks/shots, sports beverages, 100% juice/juice drinks
The protein evolution	More protein to maintain healthy bones/joints, strengthen immune systems and build muscle strength/tone
Kid specific products	Nutrient and calorie levels specific to kids
Pharma foods	Prevention of heart disease, hypertension, osteoporosis and Type 2 Diabetes i.e. Cholesterol lowering foods/drinks
Alternatives	Free from Foods – gluten free, lactose free, meatless meals (lentils, legumes), dairy free milks (soy, rice, coconut)
Sport nutrition	Sports nutrition supplements, nutrition bars, energy drinks
Weight management	Whole grains, fiber, vitamin D, more calcium, protein, antioxidants, omega-3/fish oil
Millennials food choices	healthier, more natural/organic, less processed, better tasting and fresh food

Book Chapter No.3

Nutraceuticals Food Processing Technology (2017). Recent Trends in Functional Foods for Obesity Management. ISBN: 978-81-933172-0-4. Bharti Publications, New Delhi.

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Chapter 3

Recent Trends in Functional Foods for Obesity Management

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ABSTRACT

Obesity is a medical condition caused by the accumulation of excess fat in the body. The main causes of obesity are lifestyle, less physical activity, and increased health problems. Overweight and obesity have increased over the past 20 years in many regions of the world, particularly the prevalence of obesity in childhood. It is not only a problem of developed countries but also becoming a growing burden for the developing countries. Functional foods might play important role in prevention or treatment of overweight. Functional foods for obesity influences the energy balance equation regulated by the control of energy intake or of energy dissipated as heat (thermogenesis).