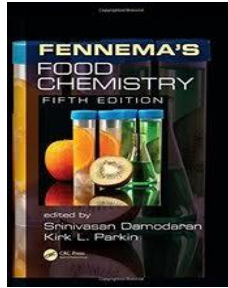


Food Chemistry I

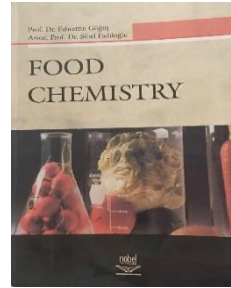


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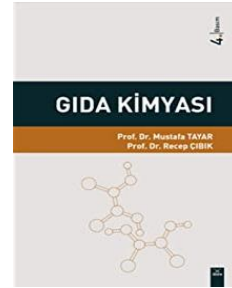
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Nutrients are of six types: fats, carbohydrates, proteins, water, mineral elements and vitamins. Food is in fact one of the most complicated sets of chemicals imaginable. Food is composed of many different chemical substances - 'macronutrients' (major nutritional components that are present in relatively large amounts, such as water,protein), 'micronutrients' (major nutritional components that are present in relatively small amounts, such as vitamins), and roughage (dietary fiber). Many other components can also be present in food.

Functions of Foods in Organism

Functions of foods in the organism; It is examined under three titles:

* physiological, * social and * psychological function.

- **Physiological function**

The most important of the functions of foods is physiological.

Nutrients for adequate and balanced nutrition of the body

1-providing energy (fats and carbohydrates)

2-growth and repair (proteins)

3-protection (oils)

it must contain nutrients that can perform at least one or more of its functions.

- Social function

Foods are very effective in positive relationships between individuals, families and communities.

- Psychological function

In addition to providing essential essential nutrients, foods have the feature of providing satisfaction and giving people pleasure.

The nutrients that make up the composition of the food are **classified in six groups** according to their **chemical structure and effectiveness in body work**:

1- Water

2- Carbohydrates (glucose, fructose, maltose, sucrose and starch)

3- Lipids (mono-, di-, tri-glycerides and polarlipids)

4- Proteins (albumin, globulin, casein and gluten)

5- Minerals

a. Those with a high daily requirement (Ca, P, Na, K, S, Mn and Cl)

b. Those with a small daily requirement (Fe, Cu, I, Co and Mo)

6- Vitamins

a. Fat soluble: vitamins A, D, E and K, and vitamin-like fatty acids (Linoleic acid)

b. Water soluble: B group vitamins and vitamin C

Effects of Nutrients on Organism

Water

Water required for:

- * digestion of nutrients
- * transport of nutrients to tissues
- * the harmful residues are removed from the body as a result of their use in cells.
- * adjusting body temperature

Since all chemical events in the body occur in solution, it is imperative to have enough water. An average of 60% of an adult human body is water.

Carbohydrates

The main activity of carbohydrates is to provide energy. In the human body, very little amounts of carbohydrates are kept as glycogen. Glycogen is most commonly found in the liver. There is some glycogen in other organs and muscles. The presence of a certain amount of glucose in the blood is important in terms of providing continuous energy to the tissues. The total amount of carbohydrates in the adult human body is below 1%.

Lipids (Fats)

18% of an adult's body is lipid. Body fat is the primary energy store of man. When there is no energy source, the fat depot in the body is used. Fat is the most energetic nutrient. In addition, some of the vitamins are taken into the body with oil. Since the fat leaves the stomach slowly, it gives a feeling of fullness. Subcutaneous fat prevents rapid loss of body temperature. Some of the building blocks of oil are involved in the production of some hormones.

Proteins

Proteins are broken down into amino acids, which are building blocks in the digestive tract, and are transported to the liver with blood. Here they combine again in a certain order and make body proteins. Proteins are the main building blocks of cells. It is the primary nutrient for growth and development. The main structures of the body's defense systems, enzymes that regulate body work and some hormones are proteins. It is also used as an energy source in the body. An average of 16% of an adult human body consists of proteins.

Minerals

- a. Those with a high daily requirement (Ca, P, Na, K, S, Mn and Cl)
- b. Those with a small daily requirement (Fe, Cu, I, Co and Mo)

An average of 6% of an adult human body consists of minerals. Some of the minerals are the building blocks of skeleton and teeth. Another part of it provides the body fluid to be kept in balance. Minerals are involved in the formation of energy from nutrients in the body, the transport of oxygen and the composition of enzymes that regulate the work of the organism.

Vitamins

- a. Fat soluble: vitamins A, D, E and K, and vitamin-like fatty acids
(Linoleic acid)
- b. Water soluble: B group vitamins and vitamin C

Vitamins help to obtain energy from foods, carbohydrates, fats and proteins, regulate biochemical events related to the formation of cells and reduce the effects of some harmful substances.