

NUTRITIONAL, BIOLOGICAL AND FUNCTIONAL PROPERTIES OF WHEY PROTEINS

□ NUTRITIONAL VALUE OF WHEY PROTEINS

Whey proteins are considered to have the highest nutritional values of all food proteins. They contain, in the right proportions, all the amino acids required by humans. Whey proteins are rich in branched chain amino acids, components that provide energy for people undergoing intense or prolonged periods of exercise and help prevent loss of body mass and muscle. They are also readily digestible and completely bio-available. Whey proteins supply additional nutritional benefits, for example, α -lactalbumin, the second most abundant whey protein, has a high content of the amino acid tryptophan, a precursor of the vitamin niacin.

□ BIOLOGICAL PROPERTIES OF WHEY PROTEINS

Whey proteins have been reported to have one or more biological functions in food. These biological properties have significance in the nutrition and health of people. The health and nutritional value of the components of whey include 1) high quality nutritional source of amino acids; 2) anti-microbial action; 3) growth enhancement of beneficial

gut microflora, such as bifidobacteria; 4) immuno-enhancing properties; 5) control of specific diseases, including cancer; and 6) antitoxin activity.

□ FUNCTIONAL PROPERTIES OF WHEY PROTEINS

Whey proteins bring a wide range of valuable functional properties as food ingredients. They can modify some or all of the organoleptic, visual, hydration, surfactant, structural, textural and rheological properties of food, resulting in improved consumer acceptance of the food product. Whey proteins in their native state are highly soluble in food and beverage systems and are used for applications such as whipping/foaming. They act at oil/water interfaces to form and stabilize emulsions. In their undenatured form, whey proteins have the ability to form rigid, heat-induced irreversible gels that hold water, fat and provide structural support. In addition, they play an important role in controlling the texture of many food products, and are used to modify the rheological properties of foods.