

6.7.1 Other Applications

Cosmetics—Alginate was used in many cosmetic preparations because it acts as a thickening agent and helps in retaining moisture. In lipstick, alginate helps to retain the color of the lipstick by forming a gel network. Alginate was used as a consistency agent in various cosmetic products and also helps in forming moisture-retaining surface film on the skin and thus prevents the problem of dry skin. Alginate is used in instant cold emulsion-type cream where it leaves the skin soft and smooth because of the water-binding capacity of alginate. At higher concentration, alginate helps in stabilizing the oil phase in emulsifier-free cosmetics. In shampoos, alginate is used as a bubble stabilizer and thickener. In toothpaste, it is used as a binding agent [131].

Food—Because of the thickening property of alginate, it is useful in sauces and syrups and as a topping in ice creams. In certain fruit drinks, sodium alginate was added to prevent the sedimentation of pulp and to keep the drink in the suspension form. In ice creams, alginates act as a stabilizer and prevent the formation of ice crystal during freezing and provide a smooth product and reduce the rate of melting of ice cream. Alginate prevents the separation of oil and water phase from the water-in-oil emulsions such as mayonnaise. In yoghurt, addition of alginate improves its texture, body, and sheen. Alginate was added in the chocolate milk so as to keep the cocoa in the suspension form. In beer, a very low concentration of alginate was added to keep the foam on the top of the newly poured glass for a long time and thus improves the subject's compliance. To preserve the frozen fish, calcium alginate films and coatings have been used. The oils in oily fish are very prone to rancidity through oxidation, even on immediate freezing and when stored at low temperature, but when the fish is frozen in calcium alginate jelly, the oils get protected from the rancidity through oxidation. Because of the gelling property of the alginate, it was used in the production of artificial cherries. Edible desert jellies can be prepared from alginate and they are referred to as instant jellies because they are prepared simply by mixing the powder either with milk or water without any heating. Alginate gels were used in restructured food products like meats. Restructured meat was prepared by taking the various meat pieces and binding them together with the help of alginate powder and then shaping them to resemble usual cuts of meats. In food industry, only propylene glycol alginate was used [132–134].

Immobilized biocatalyst—Different conversions and chemical synthesis, which are commercialized, are carried out, the best by using enzymes or active whole cell that are biocatalysts. These enzymes are used for the conversion of