12.6 Alginate as Stabilizer

Sodium alginates used in various beverages as a stabilizer are reported to enhance their functional property. Pelkman *et al*., [32] reported that a novel beverage made up of calcium gelled alginate pectin reduced the energy and food intake by stimulating endogenous satiety signaling in overweight and obese women. Sodium alginate fibers are reported to act as a dietary fiber that influences gastric emptying and nutrient absorption. Thereby, it is reported to influence the satiety in men and women subjects [32–35]. Paxman *et al*., [36] substantiated the health benefits of addition of alginates. The authors reported that sodium alginate-based drink reduces the uptake of cholesterol and glucose in overweight males. El Khoury *et al*., [37] reported that sodium alginate added to chocolate milk reduced appetite and glucose release, and it is also reported to influence the food intake and insulin production in healthy men. Dietary alginate consumed is also reported to beneficially influence the growth of *Bifidobacterium*, a probiotic microbe present in the intestine. Alginate is also reported to promote the production of organic acid and inhibit the harmful putrefactive activity of intestinal bacteria [38].

The apparent viscosity and sensory properties of beverages such as tomato juice and coffee are reported to be affected by the type of hydrocolloids used. Sodium alginate of varying concentrations is also used to study its influence on beverages. The increase in the concentration affected both the apparent viscosity and sensory properties of tomato juice and coffee. Hence, the addition of sodium alginate concentration influences the product quality [39].

The highly viscous and shear thinning or pseudoplastic flow property of the alginate solution makes it application in liquid food systems more feasible. The presence of calcium ion in beverages such as milk makes the application of sodium and potassium salts of alginates less preferable. In order to avoid sodium and potassium alginate interaction with calcium ions, sequestrants are used [40]. The increase in the concentration of alginates is also said to alter the viscosity of milk-based beverages. Sodium alginate is prevalently used in chocolate milk, eggnog, and drinkable and fruit-flavored yogurts as a clarifying agent and stabilizer, to produce a smoother and stable product. In wines, sodium alginate is used to clarify wine and to reduce tannins, clouding substances and nitrogenous compounds. A combination of alginate-phosphate is used in chocolate-milk drinks as a stabilizer.