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Emerging trends in the utilization of hydrocolloids for the formation of oleogels

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Abstract

Chocolate, ice cream, butter, margarine, meat, and bakery products are examples of foods that contain solid fat in their structure. Solid fats are added to these foods, which are often preferred as part of daily nutrition, to make them more stable in terms of texture and oxidation. Studies have shown that these fats, which contain saturated and *trans*-fatty acids, cause cardiovascular diseases. Oleogelation creates structured solid-like materials by entrapping oil in a thermo-reversible and three-dimensional gel network. Oleogels made from functional oils have been the topic of recent studies into the minimization of saturated and trans fats in foods. Oleogelification gives oils semi-solid qualities without changing their chemistry. Gelling agents are necessary to give oleogels the structure of solid fat. Wax, monoglycerides, phytosterols, ceramides, and lecithin are some of the low molecular oleogelators used to structure edible oleogels. Low molecular oleogelators, on the other hand, may have limited commercial use because of their high sensitivity to temperature and shear, as well as the comparatively large concentrations required. In consideration of this, researchers have recently become interested in high molecular oleogelators (food hydrocolloids) as a possible alternative. Hydrocolloids can be used in biphasic systems to form oleogel, at the oil-in-water (emulsion type) or air-in-water (foam method) interface. The most used hydrocolloids for this purpose are gelatin, xanthan gum, arabic gum, citrus pectin, methylcellulose, and hydroxymethyl cellulose.

Keywords: Solid fat, oleogels, hydrocolloids.

