



Food emulsions as delivery systems for flavor compounds: A review

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ABSTRACT

Food flavor is an important attribute of quality food, and it largely determines consumer food preference. Many food products exist as emulsions or experience emulsification during processing, and therefore, a good understanding of flavor release from emulsions is essential to design food with desirable flavor characteristics. Emulsions are biphasic systems, where flavor compounds are partitioning into different phases, and the releases can be modulated through different ways. Emulsion ingredients, such as oils, emulsifiers, thickening agents, can interact with flavor compounds, thus modifying the thermodynamic behavior of flavor compounds. Emulsion structures, including droplet size and size distribution, viscosity, interface thickness, etc., can influence flavor component partition and their diffusion in the emulsions, resulting in different release kinetics. When emulsions are consumed in the mouth, both emulsion ingredients and structures undergo significant changes, resulting in different flavor perception. Special design of emulsion structures in the water phase, oil phase, and interface provides emulsions with great potential as delivery systems to control flavor release in wider applications. This review provides an overview of the current understanding of flavor release from emulsions, and how emulsions can behave as delivery systems for flavor compounds to better design novel food products with enhanced sensorial and nutritional attributes.

KEYWORDS

Food flavor; emulsion; delivery system; oil; controlled release