Role of Dispersion Type, Fat Phase, and Fiber Nature in the Texture and Stability of Model Chocolate Emulsions

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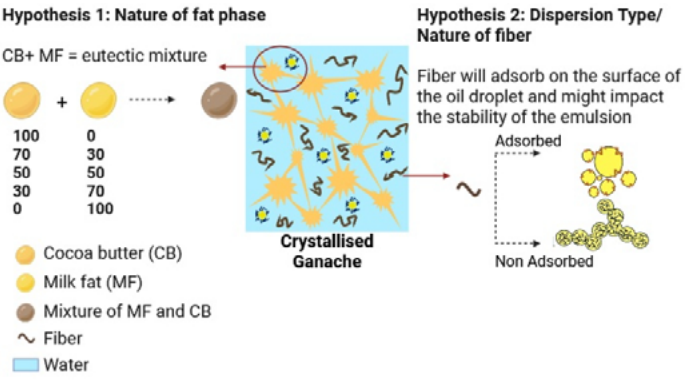
Ganache is a classic chocolate preparation widely used as a filling in biscuits, pastries, and confectioneries. Fundamentally, ganache is an emulsion composed of chocolate, sugar, and cream. According to Saglio et al. (2018) [1], freshly prepared hot ganache forms an Oil-in-Water emulsion, which transitions into a bicontinuous system upon cooling. The fat phase in ganache primarily consists of cocoa butter and milk fat. When combined, these fats may form a new eutectic fat phase, significantly affecting melting temperature and crystallinity, and consequently influencing both microstructure and macroscopic texture. Besides, the presence of fibers in ganache can also further modulate the emulsified state: fibers help to improve the texture and to maintain dispersed droplets depending on their localization, whereas their absence might lead to increased partial coalescence [2].
This study aims to elucidate the specific roles of fat composition and fiber type in shaping the microstructure and thermal properties of ganache. First, the influence of different fat blends on melting behavior, crystallinity, texture, and emulsion stability was studied. Second, the effect of fiber type on emulsion stability through particle adsorption at the interface or increase of viscosity and on overall texture has been examined. The influence of fibers was assessed under several conditions, including their presence or absence and their localization (at the interface vs. in the continuous phase).
The results obtained so far indicate that both fat composition and fiber type might influence the stability and texture of the emulsion.

Keywords:
Ganache, Fat, Fiber, Cocoa Butter, Milk Fat, Emulsions, Interface



Summary of the Hypothesis regarding the effect of the dispersion Type, Fat Phase, and Fiber Nature in Chocolate ganaches

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