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FACTORS INFLUENCING FORMATION AND STABILITY OF ORANGE-FLAVOURED BEVERAGE EMULSION

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ABSTRACT The influence of concentration of Arabic and xanthan gums as well as sucrose on the characteristics of orange flavoured beverage emulsions subjected to heat and freeze-thaw treatments were investigated over a long storage period. The results showed that surface and interfacial tensions were both greatly affected by the composition of the aqueous phase. The flow behaviour of emulsions and also the average size of oil droplets and their stability against coalescence were found to change by increasing the proportion of hydrocolloids and sucrose. Heat and freeze-thaw treatments were shown to affect the stability of emulsions in both concentrated and diluted forms during prolonged storage periods, with the speed depending on the formulation of aqueous phase. In this paper, the mechanisms governing the stability of beverage emulsions and the models predicting coalescence and phase separation of oil droplets will be discussed in detail.

Keywords: orange-flavoured beverage; emulsion; gum Arabic; xanthan gum