**Modeling the physicochemical properties of orange beverage emulsion as function of main emulsion components using response surface methodology.**


## ABSTRACT

The effect of main beverage emulsion components namely Arabic gum (7–13% w/w), xanthan gum (0.1–0.3% w/w) and orange oil (6–10% w/w) on physicochemical properties of orange beverage emulsion was determined by using a three-factor central composite design (CCD). The reduced models with high R2 ($\geqslant$0.80) values and non significant ($p > .05$) lack of fit were significantly ($p < .05$) fitted to the experimental data, thus ensuring a satisfactory fitness of the regression models relating the response to independent variables. The quadratic effect of xanthan gum had a significant ($p < .05$) term in all reduced models. The independent variables had the most significant ($p < .05$) effect on turbidity loss rate and viscosity ratio. The overall optimum region resulted in the desirable orange beverage emulsion was predicted at a combined level of 13% (w/w) Arabic gum, 0.3% (w/w) xanthan gum and 10% (w/w) orange oil.



**Keyword:** Emulsion stability; Viscosity; Fluid behavior; æ-Potential; Electrophoretic mobility; Orange beverage emulsion; Response surface methodology.