

## **Effect of various hydrocolloids on physicochemical characteristics of orange beverage emulsion.**

### **ABSTRACT**

The influence of high methoxy pectin (1.5, 3 and 4.5% w/w) and carboxymethylcellulose or CMC (0.1, 0.3 and 0.5% w/w) as a replacer for Arabic gum and xanthan gum on the physicochemical properties of the orange beverage emulsion was assessed by determining the  $\zeta$ -potential, conductivity, pH, apparent viscosity, fluid behavior and turbidity. It was observed that the significant ( $p < 0.05$ ) effect of pectin and CMC on physicochemical properties was pronounced by their significant ( $p < 0.05$ ) effect on  $\zeta$ -potential and pH. The relatively high negatively charged  $\zeta$ -potential ( $> 25$  mV) was observed, thus ensuring no indication of droplet flocculation. The magnitude of negatively charged  $\zeta$ -potential was mainly dependent on the changes in pH value. The significant ( $p < 0.05$ ) changes in viscosity also appeared to be pH dependent. Apparent emulsion viscosity increased with increasing CMC or pectin content. In most cases, the degree of pseudoplastic behavior significantly increased with increasing pectin or CMC concentration.

**Keyword:** Pectin; Carboxymethylcellulose; Arabic gum; Xanthan gum; Beverage emulsion;  $\zeta$ -potential; Apparent viscosity; Fluid behavior; Turbidity.