

## **Effect of emulsifier diacetyl tartaric acid ester of mono- and diglycerides (DATEM) and enzyme transglutaminase on quality characteristics of rice bran croissants**

### **ABSTRACT**

Rice bran (RB) is a good source of dietary fibre. Addition of rice bran into croissant interferes with the gluten formation of dough and hence affect the physicochemical properties of croissant. The effect of RB addition on physicochemical properties of croissant were determined by using 0%, 10% and 15% RB. Besides, additives such as emulsifiers and enzymes can be used in pastry to enhance the physicochemical properties of croissant. Diacetyl tartaric acid ester of mono-diglycerides (DATEM) and transglutaminase (TGase) were used respectively on 0%, 10% and 15% RB to investigate the effect of such additives on physicochemical properties of croissant. Increased % RB and DATEM, produced a significant decrease in specific volume, together with a significant increase in colour, hardness and chewiness. With increased % RB, TGase caused significant increase in colour, hardness and chewiness but significant decrease in specific volume. The overall moisture sorption isotherm curves of the croissant belong to the Type III isotherm, also known as Flory-Huggins Isotherm (J-shaped). The critical  $a_w$  obtained from the Guggenheim-Anderson-de Boer (GAB) equation showed that the shelf life of croissants were not positively impacted by the addition of DATEM and TGase and the addition of RB did not cause any significant positive effects on quality characteristics of croissants.

**Keyword:** Rice bran(RB); DATEM; TGase; Physicochemical properties; Moisture sorption isotherm