

Development of A Low Calorie Red Dragon Fruit Jam

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ABSTRACT

Jam products that exist in the Malaysian market are typically high in sugar content and high in calorie, and low-calorie jams however are rarely found. Hence, low calorie jam has a potential to provide an alternative solution. The objectives of this research were to develop a low calorie red dragon fruit jam by optimizing low methoxyl pectin (LMP), calcium chloride (CaCl_2) and sweetener (Aspartame) factors on the likeness attributes of a low-calorie red dragon fruit jam as well as to determine the physicochemical composition and the microbiological analysis of the optimized low-calorie red dragon fruit jam. Three factors such as CaCl_2 (A), LMP (B) and aspartame (C) used in jam production were added according to experimental design (Box-Behnken) and 15 formulations produced and were subjected to quantitative descriptive analysis (QDA) techniques by 10 trained panelists. The three factors showed significant difference ($P < 0.05$) on most of the sensory attributes except colour and overall acceptability attributes. The optimized reactant formulation were CaCl_2 (0.02%), LMP (1.5%) and aspartame (0.42%) and it scored close to 73.93% for overall acceptability attribute. For hedonic test, there was a significant difference ($P < 0.05$) between optimized formulation with the commercial jam for most attributes except appearance and sourness. It was considered the second preferred after the commercial jam. A low-calorie red dragon fruit jam was successfully produced contained 7 calories per serving (15 g), however it was readily subjected to spoilage.

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