The Effect of Yellow Pumpkin (Cucurbita maxima) Subtitution on the Chemical, Physical, and Sensory Characteristics of Instant Multigrain Rice

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ABSTRACT

Instant multigrain rice has the potential to be developed as a functional food through the utilization of local food ingredients. This study aims to determine the effect of pumpkin (Cucurbita maxima) substitution on the chemical, physical, and sensory characteristics of instant multigrain rice, and to determine the best formulation. The study used a completely randomized design with one factor with six treatment levels, namely the addition of pumpkin 0%, 5%, 10%, 15%, 20%, and 25%. The parameters observed included water content, dietary fiber, antioxidant activity, Water Holding Capacity (WHC), rehydration time, color (L, a*, b*), and sensory characteristics. Data were analyzed using ANOVA at the 5% level, followed by Duncan, Friedman, Wilcoxon tests, and the effectiveness index. The results showed that pumpkin substitution had a significant effect (P<0.05) on all parameters. Increasing the concentration of pumpkin decreased water content and dietary fiber, and increased antioxidant activity, WHC value, rehydration time, color quality, and panelist acceptance level. The best formulation was obtained in F6 treatment with 25% pumpkin substitution based on the highest effectiveness index value. This treatment produced the highest antioxidant activity of 78.8%, the lowest water content of 10.86%, the hedonic sensory acceptance level of aroma 4.08, color 3.88, taste 4.32, and texture 4.52, and the hedonic sensory acceptance level of taste 4.32, color 4.48, texture 4.60, and aroma 4.60, as well as the WHC value of F6 was 265.65%.*

Keywords: *pumpkin, instant Multigrain Rice, functional food, antioxidants, drying*