Development of Ready-to-Eat Cereal Product with Sorgum-based (Sorghum bicolor L.) Extrusion Method

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ABSTRACT

Nutritious, easy and fast to serve breakfast cereal is becoming a solution for urban people which has less time in the morning due to early business. Endogenous cereal, such as sorgum, would become an alternative to flour to produce breakfast cereal, with its superiority as dry climate resistant plant and having sustainable production, so as to support national food security. With high flexibility, control, and production, twin-screw extrusion method was used to produce the breakfast cereal. The preliminary research determines materials that would be suitable to create acceptable texture, color, and taste of the extrudate. The main research showed the suitable amount of tapioca and emulsifier might be used to produce well-textured and preferable product. Product with 100% sorgum, 15% flour sugar, 10% cocoa powder, 4% vegetable oil, and 1% salt was the best to produce acceptable texture, color, and taste of the extrudate. Replacement of 10% sorgum with tapioca and the addition of 1% emulsifier resulted in preferable product in hedonic rating and best characteristic in physical analysis. Acceptance test to target consumer with different social-economy level was done, resulting in good response of the panelist toward the product. Feasibility study was also done to provide a reference if small-scale industry of the product might be feasible. With the period of 5 years project for the production level of 5.5 tones/month, the NPV value is Rp 30,413,824−, the IRR value is 14% (at discount rate of 13%), the net Benefit Cost Ratio is 1.01, and Payback Period at 4 years 25 days, so as to conclude that the project is feasible.

Keywords: sorgum, breakfast cereal, extrusion

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