

# Formulation of Catfish-Based Complementary Feeding Using Linear Programming Method as a Stunting Prevention Effort at Matahari Posyandu, Mulyaharja Subdistrict, Bogor City

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## Abstract

**Background** - Nutritional issues among infants and toddlers are a major challenge in Indonesia, including in Bogor City, particularly in South Bogor District, Mulyaharja Subdistrict. One of the key efforts in preventing malnutrition is the provision of Complementary Feeding. Ensuring high-quality of Complementary Feeding with appropriate macro and micronutrient density should be prioritized for children aged six months and older. Catfish is a source of animal protein widely chosen by freshwater fish farmers in Bogor City. Developing catfish-based complementary feeding is a potential solution to improve nutritional intake, especially in areas with a high prevalence of stunting. This development can be conducted using a Linear Programming approach to ensure an optimal Complementary Feeding formulation that meets nutritional needs while utilizing affordable local food ingredients.

**Purpose** - Developing a formulation of complementary feeding using local food ingredients based on catfish through linear programming and conducting acceptability tests for the formulated catfish-based complementary feeding in areas at risk of stunting.

**methodology** - The formulation process of catfish-based complementary feeding uses the linear programming method with the POM-QM application based on nutritional content obtained from literature studies. Once the formula is developed, a product preference test is conducted using a hedonic test with parameters including taste, aroma, texture, color, and appearance, along with a facial expression test to visually measure infants' responses to the food. Subsequently, proximate analysis is performed to determine the nutritional composition of the final product.

**Findings** - Overall, this study makes a significant contribution to the development of nutrient-rich, affordable, and well-accepted local food-based complementary feeding. The formulation derived from the catfish MP-ASI recipe consists of catfish, fresh coconut milk, and rice in a ratio of 1:0.28:0.7. The researcher used 100 grams of catfish, 28 mL of fresh coconut milk, and 70 grams of rice. In the hedonic test, the average results were favorable, while the facial expression test showed a neutral response with no rejection. The proximate analysis revealed an ash content of 0.7%, fat content of 3.18%, moisture content of 81.93%, carbohydrate by difference of 7.36%, and protein content of 7.08%.

**Originality** - Generally, issues related to stunting prevention are addressed through counseling, socialization, and education. In this study, before conducting socialization and organoleptic tests of the complementary feeding product, the researcher will develop a recipe (formula) supported by a literature review of the nutritional content of the raw materials and in accordance with the technical specifications of complementary feeding based on the Ministry of Health standards.

Keywords: Catfish, Complementary Feeding, Formulation, Linear Programming, Stunting

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