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Nutritional Assessment of Sagurimi: Innovative Dry Noodles from Sago Flour and Nile Tilapia (*Oreochromis niloticus*) for Stunted Children

[Indonesian Food Science and Technology Journal](#) • Article • Open Access • 2026 •

DOI: 10.22437/IFSTJ.V9I1.43017

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Abstract

Chronic malnutrition at crucial stages of a child's development can result in stunting, a serious public health concern. The goal of this study was to create high-protein dry noodles. The study used several methods, such as the oven method for measuring water content, the dry ashing method for ash, the Soxhlet method for fat, the Kjeldahl method for protein, the difference method for carbohydrates, the enzymatic method for fiber, the Atwater factor for energy content, the Na₂EDTA complexometric titration for calcium, the atomic absorption spectroscopy (AAS) for iron, the in vitro

method for measuring protein digestibility, and the DPPH method for measuring antioxidants. Three formulations, namely F1 (20:20:60), F2 (30:40:30), and F3 (40:30:30), were developed to represent different ratios of sago flour, wheat flour, and fish meal. F1 exhibited the highest nutritional values, particularly in protein (24.60 g), fat (29.19 g), calcium (479.57 mg), iron (26.11 mg), and antioxidant activity (35.79%). The best formulation was selected using the Index of Effectiveness method, combining rankings of nutrient content and sensory acceptability. Due to its higher wheat flour content, F2 had the highest calorie content (494.04 kcal) and carbohydrate content (33.24 g). Because F3 contained more sago flour, it had the most fiber (14.98 g). These results demonstrate the potential to create novel, regionally sourced foods, such as Sagurimi made from Nile tilapia, to help reduce childhood stunting. To evaluate acceptability and efficacy, future research should focus on clinical trials and sensory evaluation. © (2026), (Jambi University). All rights reserved.

Author keywords

Dry Noodle; High Protein; Stunted; Supplementary Food

Funding details

Details about financial support for research, including funding sources and grant numbers as provided in academic publications.

Funding sponsor	Funding number	Acronym
Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi See opportunities by MECRT	359-076/UN7.D2.1/PP/VI/2025	MECRT
Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi See opportunities by MECRT		MECRT

Funding text

The authors extend their sincere gratitude to the PMDSU program under the Ministry of Education and Culture Research and Technology of the Republic of Indonesia for the research grant with No. 359-076/UN7.D2.1/PP/VI/2025.

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Abstract

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