

# Production of Ogiri from Soya Beans Using Microorganisms Responsible for Fermentation of Castor Oil Bean Seeds

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## Introduction

Ogiri is a byproduct of the fermentation of various raw materials such as castor oil seed (*Ricinus communis*), melon seeds (*Citrullus vulgaris*), fluted pumpkin seed (*Telfairia occidentalis*), soybeans (*Glycine max*), widely used as a condiment in soups (Babatuyi *et al.*, 2024). Traditionally, oil seeds and legumes are fermented to produce regional condiments, which are used as soup thickeners and improve flavours, when preparing food. *Glycine max* (soybean) is a member of the Papilionideae, a subfamily of the Leguminosae. The use of soybeans in food production has historically been restricted by the presence of antinutrient elements, which prevent the bioavailability of desired nutrients. Nonetheless, boiling and fermentation have been used to reduce them. This study focused on the production of Ogiri from soybeans using microorganisms responsible for the fermentation of castor oil seeds.

## Materials and methods

Soybean seeds and castor oil seed-based ogiri were sourced from Oja Odan market, Ogun State. Microorganisms associated with castor oil seed Ogiri were isolated following the method of Adamu *et al.* (2018). The method described by Okwunodulu and Uzochukwu (2000) was used in the preparation of the Ogiri sample. The product was subjected to chemical analysis.

## Results and discussion

Figure 1 revealed that *Bacillus subtilis* can be isolated from castor oil ogiri and can be used as a fermentation substrate for the production of soybean ogiri (Figure 2). The chemical composition (g/100g) of the freshly produced soybean ogiri has a moisture content (35.20), dry matter (68.6), ash (2.84), soluble protein (34.00), fat (22.30), crude fiber (2.01), carbohydrate (25.53 g/100g), pH (6.90), titratable acidity (2.04), and metabolized energy (1275.41 KJ/100g).



Fig. 1: *Bacillus subtilis* on nutrient agar



Fig 2: Produced soybean ogiri

## Conclusion

The study concluded that there is the presence of *B. subtilis* in castor oil samples, emphasizing its role in the fermentation process. The proximate analysis of produced ogiri reveals high nutritional value, particularly as a source of plant-based protein and energy. The study concluded that ogiri produced using soya beans is nutritious and has an adequate level of acidity to support flavour and safety through fermentation.