



## EFFECT OF THERMAL PROCESSING AND FERMENTATION ON THE CHEMICAL COMPOSITION, PROTEIN DIGESTIBILITY AND FUNCTIONAL PROPERTIES OF BAMBARA PROTEIN ISOLATE

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### Abstract

Protein isolate offers huge opportunity in the expansion of a new class of formulated foods. In this study, the effect of thermal processing and fermentation on the chemical composition, protein digestibility and functional properties of Bambara nut protein isolate were investigated. Thermal processing reduced the yield of the protein (53.4% and 51.6%) while fermentation increased the yield of the protein (54%) when compared to the raw sample (53.8%). Protein digestibility of the isolate significantly increased due to thermal processing and fermentation. The proximate composition of the isolate revealed that fermentation increased the crude protein content of protein isolate (83.2%) compared to the raw sample (82.3%) while all the processing method used increased the ash content significantly. Processing had no effect on the water absorption capacity, foaming capacity and stability of the protein isolate. However, the emulsion stability of all the samples improved with processing. Protein digestibility, yield, protein content, and emulsion stability were improved by processing especially fermentation, these attributes may improve the possible use of Bambara nut protein isolates as an excellent protein ingredient in the food system.

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