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Understanding the processing behaviour of the underutilised Nigerian pigeon pea seed as a contribution to ensuring food security

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The overall aim of this ongoing research is to understand the processing behaviour of Nigerian pigeon pea seed with a view to formulate a highly nutritional ready-to-eat snack product in regions where pigeon pea is native and food security is of concern. Extrusion processing was selected as the conversion process from seed to consumer product in particular with the aim of designing a cost effective one-step process. This necessitates thorough understanding of the physico-chemical material properties of native pigeon pea seeds and the impact of enhanced pressure and temperature in presence and absence of water in the most basic formulation. Challenges anticipated at the onset of this research included the hard-to-cook property of these seeds and the presence of anti-nutritional factors. At domestic scale pigeon pea seeds are soaked in water at least overnight then washed and cooked. At industry scale a shorter process would be more desirable; thus hydro-thermal and enzymatic conditioning of pigeon pea seed and the impact on their physico-chemical and nutritional properties were investigated. Pre-conditioning was carried out on whole seeds followed by draining of the aqueous conditioning medium and milling. The milled flour has a moisture content of about 20% wwb and requires dehydration before it can be extrusion processed. This additional process step adds to the cost and thus it was evaluated whether milled flour prepared from the original seeds can be directly extrusion processed. Indeed, this was successful and on the poster examples of extrudates and results of their physico-chemical and nutritional analysis will be presented. Overall, this research has shown some promising results and without having explored complex formulations it has produced a basic near-market snack product.

Biography

Mary Okpala is a Lecturer at Federal Polytechnic Oke, Anambra state Nigeria but currently doing her PhD research at the Division of Food Science, University Of Nottingham, United Kingdom. Her area of interest is in studying the structural transformation of pigeon pea through extrusion processing with the aim of producing a high quality ready to eat products. She has also acquired six years of experience in the Pasta industry.

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