

Anti-Nutritional Factors, In-Vitro Trypsin, Chymotrypsin and Peptidase Multi Enzyme Protein Digestibility of Some Melon (Egusi) Seeds and Their Protein Isolates

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Abstract : Abstract In-vitro multi-enzyme protein digestibility (IVMPD) and some anti-nutritional factors (ANF) of five melon (egusi) seed flours (MSF) and their protein isolates (PI) were carried out. Their PI have potentials comparable to that of soya beans. It is important to know the IVMPD and ANF of these protein sources as to ensure their safety when adapted for use as alternate protein sources to substitute for cow milk, which is relatively expensive in Nigeria. Standard methods were used to produce PI of *Citrullus colocynthis*, *Citrullus vulgaris*, African Wine Kettle gourd (*Lagenaria siceraria* I), Basket Ball gourd (*Lagenaria siceraria* II) and Bushel Giant Gourd (*Lagenaria siceraria* III) seeds and to determine the ANF and IVMPD of the MSF and PI unheated and at 37°C. Multi-enzymes used were trypsin, chymotrypsin and peptidase. IVMPD of MSF ranged from (70.67±0.70) % (*C. vulgaris*) to (72.07± 1.79) % (*L.siceraria* I) while for their PI ranged from 74.33% (*C.vulgaris*) to 77.55% (*L.siceraria* III). IVMPD of the PI were higher than those of MSF. Heating increased IVMPD of MSF with average value of 79.40% and those of PI with average of 84.14%. ANF average in MSF are tannin (0.11mg/g), phytate (0.23%). Differences in IVMPD of MSF and their PI at different temperatures may arise from processing conditions that alter the release of amino acids from proteins by enzymatic processes. ANF in MSF were relatively low, but were found to be lower in the PI, therefore making the PI safer for human consumption as an alternate source of protein.

Keywords : Anti-nutrients, Enzymatic protein digestibility, Melon (egusi), Protein Isolates.

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