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### Bioactive and Functional Properties of African Yam Bean (*Spenostylis Stenocarpa*) Protein Hydrolysates

**Yetunde Oyebola**

*Joseph Ayo Babalola University, Nigeria*

African yam bean is an underutilized legume that has a potential for supplementing the protein requirements of many. The African yam bean (*Spenostylis stenocarpa*) protein isolate was hydrolyzed with pancreatin (pancreatin was purchased from sigma chemicals, St Louis Missouri, USA) to obtain a hydrolysates that has (42% degree of hydrolysis), which was characterized for its amino acid composition, ability to scavenge free radicals and its functional properties were compared across different pH values. The African yam bean protein isolate and hydrolysates samples were dried to constant weight, defatted, hydrolyzed, evaporated in a rotary evaporator and loaded into Technicon Sequential Multi-sample Amino Acid Analyzer. The major amino acids were found to be glutamate (16.66g and 9.23g), aspartame (11.23g/7.26g), and argentine (6.82g/3.28g) while the contents of sculpture-containing amino acids (methionine and cysteine) were very low (1.33g/0.83g and 1.32g/0.51g). It had a balanced content of essential amino acids with respect to FAO/WHO feeding patterns for adult. It was discovered that the Protein solubility of the hydrolysates was >80% over a wide pH range of 2 - 10. The protein hydrolysates showed a better functional capacity of >140% over a wide pH range of 3-8. In contrast, the protein hydrolysates had a poor foaming stability over the same range. The emulsifying properties were remarkably low. The surface hydrophobicity of the hydrolysates increased with increase in concentration giving a better emulsion stability. The high degree of hydrolysis helps in breaking down the proteins into lower molecular peptides (albumins) which gives an excellent antioxidant property with 2, 2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging activity and the ability to inhibit the activity of angiotensin I-converting enzyme. The African yam bean protein hydrolysates gives excellent functional properties that can help in the treatment of some cardiovascular and heart diseases. Increased protein solubility of the hydrolyzed products can be used to fortify acidic food drinks for increased nutritional quality.

**Keywords:** African yam bean protein isolate, hydrolysates, amino acid composition, antioxidant properties, pancreatin, hydrolysis and DPPH.