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Study of the antioxidant activity of enzymatic hydrolysates of *cassava* (*Manihot esculenta Crantz.*) leaf protein

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Statement of the Problem: The cassava (*Manihot esculenta Crantz.*) production industry generates a large quantity of byproducts, among which are the leaves, which reach 49 million tons worldwide. These leaves can be consumed by humans and animals because of their high protein content (18 and 38%); however they have low utilization due to the lack of technical and scientific information. Its high protein content makes it a substrate of interest for enzymatic hydrolysis and the search for bioactive peptides with potential use in the food industry.

Methodology & Theoretical Orientation: The cassava leaves were dried (T=50 °C, t=6 hours) and ground before the hydrolysis process. This process was carried out by means of the pH-Stat method at 50 °C, enzyme/substrate ratio [E:S]: 0.07 und/g protein, for 2 hours. The enzymes used were Alcalase 2.4L (pH: 9.0), Neutrase 0.8L (pH: 7.0), Protamex (pH: 8.0) and Flovourzyme (pH: 8.0). The extraction efficiency of protein (E%), the degree of hydrolysis (GH%), the antioxidant activity by the ABTS°+, FRAP, ORAC and Crocin methods were analyzed.

Findings: The enzymes Alcalasa 2.4L and Protamex did not present statistically significant differences in GH, but E was higher in the hydrolysis performed with Alcalasa 2.4L (50.4%), also showed higher antioxidant activity measured by the transfer methods of electrons (ABTS°+ and FRAP), but for the hydrogen atom transfer methods (Crocin and ORAC) the Neutrase 0.8L and Protamex did not show statistically significant differences.

Conclusion & Significance: It is possible to obtain protein hydrolysates cassava leaves with high antioxidant activity with protease enzymes such as Alcalase 2.4L, Neutrase 0.8L, Flavourzyme and Protamex.

Biography

Lina Marcela Suarez Restrepo is a Food Engineer graduated from the University of Antioquia, where she currently holds Doctoral studies in Pharmaceutical and Food Sciences. Her research has been in the search for biofunctional compounds of extracts and plant protein hydrolysates.

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