# EVALUATION OF THE ANTIOXIDANT ACTIVITY OF THE PEPTIDES OBTAINED FROM DEFATTED PEANUT FLOUR (ARACHIS *HYPOGAEA L.)*

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**Introduction.** Peanut has significant nutritional value due to its high protein content (24-36 %) and lipids. The main product obtained is peanut oil, nonetheless oil extraction process generates an important residual press cake rich in protein (50-55%), which is headed for animal feed in its entirety. Peanut protein hydrolysates production has been proposed as an alternative for the optimal use of this product.

**Methods.** Hydrolysates or peptides with antioxidant activity may have an impact in reducing oxidative stress and thereby decrease the risk of degenerative diseases (Aider and Barbanab, 2011). The method of alkaline extraction was performed followed by isoelectric precipitation (Pedroche et al., 2004). The enzymatic hydrolysis was performed with pepsin-pancreatin sequential system (PP); initial volume, 200 ml (4% protein), E / S = 1/100, T = 37 ° C, pH = 2 and 8, respectively. The antioxidant properties were evaluated by means of bleaching radical ABTS (Re et al., 1999), and DPPH radical uptake (Molyneux. 2004).

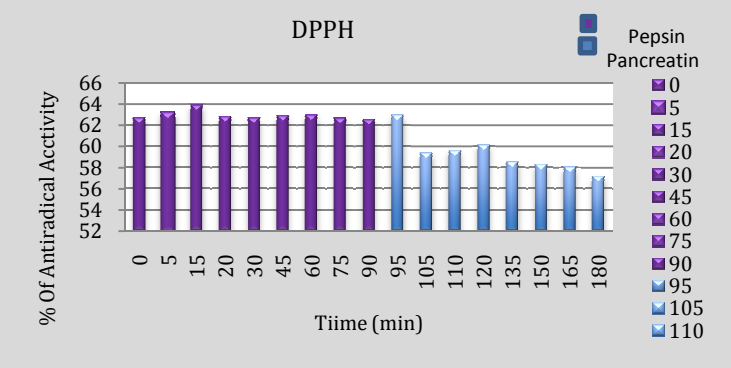
**Results.** The protein content was increased from 44.84 g/100g in the residual press peanut cake to 87.89 g/100g in the protein concentrate. (See Table 1)

**Table 1.** Proximate analysis of the defatted flour and protein concentrate peanut (Arachis hypogaea) (g/100 g sample dry basis).

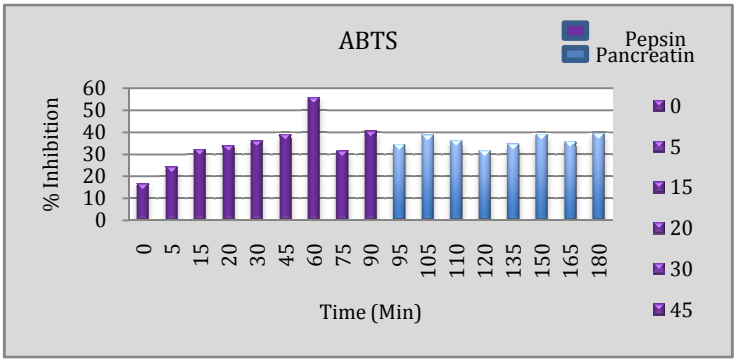
| Component[2] | Peanut Flour | Defatted Peanut Flour | protein concentrate |
|---|---|---|---|
| Humedad | 4.49 ± 0.11 | 10.40 ± 0.18 | 5.98 ±0.10 |
| Cenizas | 2.30 ± 0.01 | 3.9 ±0.30 | 3.73 ±0.28 |
| Proteína (Nx5.45) | 24.62 ± 0.45 | 44.84 ± 1.23 | 87.89 ± 0.12 |
| Extracto etéreo | 52.37 ± 0.83 | 4.01±0.54 | 2.57 ± 0.80 |
| Fibra total | 4.85 ± 0.01 | 10.16±0.02 | 4.5 ± 0.78 |
| Extracto libre de nitrógeno[1] | 15.82 | 37.07 | 1.33 |

[1]Nitrogen free extract calculated by difference
[2]Represent the average of three determinations.

The antioxidant properties were evaluated by means of bleaching radical ABTS (Re et al., 1999), and DPPH radical uptake (Shimad et al. 1992). The highest percentage of antioxidant activity showed for the DPPH assay was 63.95%, while the highest percentage of antioxidant activity for ABTS assay was 55.89% expressed as inhibition percent. (See graph 1 and 2)




**Graph 1**.- Performance of different times hydrolyzed using the method of DPPH




**Graph 2.** Performance of different times hydrolyzed using the method of ABTS.

**Conclusions. I**n the pepsin-pancreatin sequential system inhibition percentages radical and antiradical activity are greater in the early stages of hydrolysis.The residual flour obtained after oil extraction has improved characteristics for its use in the production of protein concentrates/isolates, protein hydrolysates obtained by the enzymatic system used (pepsin-pancreatin) increases the release of bioactive peptides, per se as an alternative for an agro-revaluation of this product.

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