

In Vitro Antioxidant Properties of Balanites Aegyptiaca Del Enzymatic Protein Hydrolysates

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Abstract : B.aegyptiaca del (Balanites aegyptiaca del) seed protein concentrate (APC) was hydrolyzed using different enzymes such as pepsin+pancreatin (PP), Alcalase (Alca), and Flavourzyme (Flav). The Alca has higher yield (100%) when compared to PP (83.23%) and Flav (62.90%). The hydrophobic amino acid and Sulphur containing amino acid (40.19%, 7.04%) in PP hydrolysate were higher compared to Alcalase (38.92%, 6.69%), Flavourenzyme (37.43%,6.35%), and APC (39.97%, 6.95%) samples. The PP has stronger DPPH, Hydroxyl radical quenching, Ferric reducing activity, and linoleic acid peroxidation activity, followed by the protein concentrate (APC) and Alcalase (Alca), while Flavourenzyme (Flav) derived hydrolysate was least in scavenging and inhibiting radical peroxidation properties. Flavourenzyme derived hydrolysate had stronger Ferric reducing antioxidant potential and metal chelating property. The result showed that the Alcalase hydrolysate has promising peptide yield, and PP hydrolysate had excellent amino acid residues and good in-vitro antioxidant potentials and could be a preferred ingredients in the nutraceutical and functional food emerging industries.

Keywords : balanites aegyptiaca del, protein concentrate, protein hydrolysates, enzymatic hydrolysis, antioxidants

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