ANTIOXIDANT ACTIVITY OF CHICKPEA PROTEIN HYDROLYSATE

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Proteins and protein hydrolysates from various sources, including milk, rice, wheat, fish, eggs and soybeans have been reported to exhibit antioxidant activity. Generally, the protein hydrolysates have substantially higher antioxidant activity than the unhydrolyzed proteins. The objective of this research was to prepare and hydrolyze chickpea protein isolate, to investigate the antioxidant activity of the chickpea protein isolate and its hydrolysate, and to measure the antioxidant activity of fractions separated from the protein hydrolysate and collected by RP-HPLC. Chickpea protein (CP) was prepared by alkali extraction (pH 11.5) followed by isoelectric precipitation and the lyophilized isolate was subjected to trypsin hydrolysis. The degree of hydrolysis (DH) of the CP was 12.3% after 2h hydrolysis at 37C. The protein isolate and its trypsin hydrolysate (CPH) were subjected to DPPH (1,1-diphenyl-2 picrylhydrazyl) radical scavenging assay to measure antioxidant activity. The CP and CPH at concentration of 10mg/ml showed antioxidant activities of 8.3% and 26.8%, respectively. CPH was fractionated by RP-HPLC and 4 fractions identified as FI, FII, F III, and F IV were collected; the antioxidant activities of 4 CPH fractions were measured using the DPPH radical scavenging assay. The antioxidant activity of the 4 fractions ranged from 20.8% to 27.9% with fraction FII showing the highest antioxidant activity. The chickpea protein hydrolysate, like several other food protein hydrolysates, has the potential to action to act as an antioxidant food ingredient.