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RESEARCH PAPER

Characterization of radish leaf protein concentrates for biochemical, functional properties, antioxidant activity, mineral content and microbial stability

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Abstract : Leaf protein concentrate was extracted from radish leaves using heat coagulation and analyzed for its antioxidant capacity, mineral content, functional properties and microbial stability. Radish leaf protein concentrates (RLPC) constituted 48.3 % protein content and a yield of 38.51% (DW). Glutelins (42.27 %), prolamins (29.07%) and albumins (19.32 %) were found to be three major fractions of protein concentrate, while globulins (9.38%) was a minor component and their apparent molecular weights ranged between 12-60 kDa. Antioxidant activities (FRAP, ABTS and DPPH) were higher in RLPC as compared to the isolated fractions. Among fractions, globulins and prolamins exhibited highest DPPH and FRAP activity while highest ABTS activity was associated with glutelins, respectively. Functional properties *viz.,* water holding capacity, oil holding capacity, emulsifying capacity and emulsion stability of the RLPC were 545, 347, 51.8 and 49.4%, respectively. The maximum solubility of RLPC was observed at pH 12 (44.64%) and the minimum solubility was observed at pH 4 (28.24%). A considerable amount of minerals were present in the RLPC, Ca and Fe being the most abundant. Microbial load of RLPC remained in acceptable limits up to 35 and 21 days of storage under refrigerated and ambient conditions, respectively. These results indicated that LPC have desirable functional properties, a considerable mineral content, high antioxidant activity and sufficient microbial stability. Thus they could be used as a functional ingredient to be incorporated in food products to supplement diet and combat protein deficiency.

Key Words : Functional properties, Heat coagulation, Leaf protein concentrates, Radish leaf

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