Abstract

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# Separation and identification of iron-chelating peptides from mung bean protein hydrolysates by MALDI-TOF-MS

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## Abstract

Iron insufficiency is a frequent nutritional problem around the world. Because of its superiority in terms of enhancing solubility, bioavailability, absorption, and stability, peptides generated from protein hydrolysates have lately received interest as new iron chelators. In this study, mung bean protein concentrate was hydrolyzed using Alcalase and Flavourzyme, Mung bean protein hydrolysates (MBHA and MBHF) had increasing Fe2+ chelating activity (6.2-66.6 µM EDTA) as concentration rose from 0.1 to 2 mg/mL. It can be shown that the Fe2+ chelating activity of Alcalase and Flavourzyme hydrolysates differs, most likely due to changes in amino acid sequence and peptide chain length. The resulting hydrolysates fractionated by size exclusion – high performance liquid chromatography. Fraction 4 of MBHA had the most active chelating activity (98.69±0.2%), and further identified by MALDI-TOF-MS. In our investigation, KLLPLKL, LLKKTV, KPLLPPN, and VKGTTDK were discovered as significant iron-chelating peptides in MBHA. Results indicated that MBPHs-4 has a great potential as natural iron chelator materials for supplement.

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