

## Isolation, Preparation and Biological Properties of Soybean-Flaxseed Protein Co-Precipitates

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**Abstract :** This study was conducted to prepare and evaluate the biological properties of protein co-precipitates from flaxseed and soybean. Protein was prepared by NaOH extraction through the mixing of soybean flour (Sf) and flaxseed flour (Ff) or mixtures of soybean extract (Se) and flaxseed extract (Fe). The protein co-precipitates were precipitated by isoelectric (IEP) and isoelectric-heating (IEPH) co-precipitation techniques. Effects of extraction and co-precipitation techniques on co-precipitate yield were investigated. Native-PAGE, SDS-PAGE were used to study the molecular characterization. Content and antioxidant activity of extracted free and bound phenolic compounds were evaluated for protein co-precipitates. Removal of free and bound phenolic compounds from protein co-precipitates showed little effects on the electrophoretic behavior of the proteins or the protein subunits of protein co-precipitates. Results showed that the highest protein contents and yield were obtained in for Sf-Ff/IEP co-precipitate with values of 53.28 and 25.58% respectively as compared to protein isolates and other co-precipitates. Results revealed that the Sf-Ff/IEP showed a higher content of bound phenolic compounds (53.49% from total phenolic content) as compared to free phenolic compounds (46.51% from total phenolic content). Antioxidant activities of extracted bound phenolic compounds with and without heat treatment from Sf-Ff/IEHP were higher as compared to free phenolic compounds extracted from other protein co-precipitates (29.68 and 22.84%, respectively).

**Keywords :** antioxidant, phenol, protein co-precipitate, yield

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