

**COMPARATIVE STUDY OF PROTEIN EXTRACTION METHODS
FROM INDUSTRIALLY ROASTED AND NON-ROASTED
DEFATTED SESAME SEEDS (*Sesamum indicum* L.)**

ABSTRACT

Sesame, known as the "Queen of the oilseed crop," generates approximately 18% waste after the oil extraction, in which it contains a high protein content of 30-50% that needs to be extracted. This study compares conventional (alkaline-isoelectric point extraction) and novel extraction technologies (subcritical water extraction and enzyme-assisted extraction with carbohydrase) to assess their efficacy in extracting protein from sesame meal (SPE), focusing on yield and recovery rates. Roasting is commonly employed as a pre-treatment to enhance oil recovery from sesame seeds, where it could contribute to changes in functional protein. Therefore, this research also explores the impact of roasting and various extraction methods on the functional properties of the protein, including solubility, emulsifying properties, and water solubility. Results indicate that roasting and novel extraction (subcritical water extraction and enzyme-assisted extraction) enhance yield and recovery rates, improving solubility at pH 7.0 and 11 while decreasing the water solubility index (WSI). Despite enhancing the emulsifying activity index (EAI) at pH 7.0, these methods reduce the emulsion stability index. Overall, controlled roasting at 60-70°C for 20-30 minutes enhances the solubility and EAI of sesame proteins, instead resulting in diminished emulsion stability and water solubility.

Keywords: sesame meal, protein extraction methods, roasting, functional properties.

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