

PROTEIN PRODUCTION AND CHARACTERISATION FROM *SENGKUBAK LEAVES (Albertisia papuana Becc.)*

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ABSTRACT

LEVINA PUTRI WIJAYA. Protein Production and Characterisation from *Sengkubak* Leaves (*Albertisia papuana* Becc.)". Supervised by AZIS BOING SITANGGANG.

Leaf protein concentrate (LPC) is among the rising trends in plant-based protein. *Sengkubak* (*Albertisia papuana* Becc.) leaves exhibit protein source potential for LPC development owing to their initial protein content of 21.53% on a wet basis (wb), as a low-fat flour. This study aimed to utilise *sengkubak* leaves for LPC production and characterise their nutritional, functional, and structural properties. *Sengkubak* leaf protein was isolated using alkaline extraction and isoelectric precipitation. The produced *sengkubak* LPC (SLPC) was analysed for its macronutrients, amino acid profile, antioxidant properties, bulk density, water- and oil-holding capacity, solubility, and structural properties. SLPC contained 45.25% protein (wb) with carbohydrate as the main impurity (44.50% wb). The amino acid profile demonstrated a notable cysteine content (chemical score of 136.67%) and umami amino acids (43.60%) with a taste-active value of 90.26. SLPC has functional properties resembling those of commercial lentil protein isolates, with comparable oil-holding capacity. Structural spectroscopy of SLPC resulted in the clear identification of amides A, I, II, and III. Overall characterisation suggested the potential of plant-based, oil-in-water emulsifiers with flavour-enhancing properties. However, process improvement and optimisation are still required to enhance properties in relation to functionality, particularly to improve appearance and maintain antioxidant activity.

Keywords: *Albertisia papuana* Becc., flavour enhancer, leaf protein concentrate, phenolic-protein conjugate, *sengkubak*



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PROTEIN PRODUCTION AND CHARACTERISATION FROM SENGKUBAK LEAVES (*Albertisia papuana* Becc.)

LEVINA PUTRI WIJAYA

Undergraduate Thesis
as one of the requirements to obtain a degree of
Bachelor in
Food Technology

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