

ISOLASI PROTEIN FRAKSI pI 5 DAN pI 6 BIJI TREMBESI (*Samanea saman*) DENGAN EKSTRAKSI BASA DAN STUDI POTENSINYA SEBAGAI BAHAN FORTIFIKASI MAKANAN

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INTISARI

Telah dilakukan isolasi protein fraksi pI 5 dan pI 6 biji trembesi (*Samanea saman*) dan studi potensi fraksi proteinnya untuk fortifikasi makanan. Penelitian ini bertujuan untuk menentukan kandungan gizi biji trembesi, melakukan ekstraksi protein pada suasana basa dan fraksinasinya pada pI 5 dan pI 6, serta mengidentifikasi kandungan asam amino esensial.

Analisis kandungan gizi dari biji trembesi dilakukan dengan analisis proksimat. Kadar air ditentukan dengan gravimetri, kadar lemak dengan metode *Soxhlet*, kadar protein dengan metode Kjeldahl, kadar abu dengan metode pengabuan pada suhu 550 °C, dan karbohidrat ditentukan *by different*. Sampel bebas lemak diekstraksi pada suasana basa, disentrifugasi, dan diambil supernatannya. Protein kemudian diendapkan dengan metode fraksinasi pada pH 6 dan pada pH 5 dengan penambahan HCl. Fraksi protein dianalisis asam aminonya dengan sistem RP-HPLC yang dilengkapi dengan detektor fluoresensi

Biji trembesi mengandung 6,43% air, 10,03% lemak, 34,95% protein, 3,72% abu, dan 44,90% karbohidrat, dengan protein fraksi pI 5 dan pI 6 sebesar 18,70% dan 11,39%. Total kadar asam amino esensial protein fraksi pI 5 dan pI 6 masing-masing 38,16% dan 25,26%. Fraksi pI 5 memenuhi kebutuhan asam amino histidin, valin, dan isoleusin, sedangkan fraksi pI 6 hanya memenuhi kebutuhan asam amino histidin menurut FAO/WHO/UNU. Fraksi protein pI 5 berpotensi dalam fortifikasi makanan karena memiliki kandungan asam amino esensial lebih dari 30%, sedangkan fraksi pI 6 tidak berpotensi karena kandungan asam amino esensial kurang dari 30%.

Kata kunci: biji trembesi, protein, ekstraksi basa, fraksinasi titik isoelektrik, fortifikasi makanan

**ISOLATION OF PROTEIN pI 5 AND pI 6 FRACTION FROM RAIN
TREE SEED (*Samanea saman*) BY ALKALINE EXTRACTION AND
STUDY OF ITS POTENTIAL AS FOOD FORTIFICATION MATERIAL**

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ABSTRACT

Isolation of protein fractions of pI 5 and pI 6 of rain tree seeds (*Samanea saman*) and study of the fraction potential for food fortification have been done. This study aims to determine the nutrient content of the seeds, extract of the protein at alkaline pH and fractionate using pI 5 and pI 6, as well as identify the essential amino acid content of the fraction.

Analysis of the nutritional content of the seeds were carried out by proximate analysis. The water content is determined by gravimetric technique, fat determined by Soxhlet method, the Kjeldahl method was performed to see protein content, while ash content was determined by ashing sample at 550 °C and carbohydrates was calculated by different. Protein was extracted from fat-free samples in alkaline conditions. Protein was then precipitated at pH 6 and at pH 5 with the addition of HCl. The protein fractions were analyzed for amino acid by RP-HPLC system equipped with fluorescent detector.

The rain tree seeds contain 6.43% of water, 10.03% of fat, 34.95% of protein, 3.72% of ash, and 44.90% of carbohydrates. The fractionation was succeeded to recover 18.70 and 11.39% protein for pI 5 and pI 6, respectively. The essential amino acid content of pI 5 fractions and pI 6 was 38.16% and 25.26% respectively. The pI 5 meet the needs of the amino acid histidine, valine, and isoleucine, but pI 6 only meet the needs of the amino acid histidine according to FAO/WHO/UNU. The pI 5 fraction is to be used potential as food fortification because it contains essential amino acids higher than 30%, while the pI 6 fraction is less potential due to its essential amino acid content is high is lower than 30%.

Kata kunci: rain tree seed, protein, alkaline extraction, isoelectric point fractionation, food fortification