

**IDENTIFIKASI ASAM AMINO FRAKSI pI 5 DAN pI 6 PROTEIN BIJI TREMBESI (*Samanea saman*) DENGAN EKSTRAKSI ASAM SERTA STUDI POTENSINYA SEBAGAI PROTEIN FORTIFIKASI**

Kurnia Nurul R  
10/300700/PA/13339

**INTISARI**

Telah dilakukan identifikasi asam amino fraksi pI 5 dan pI 6 protein biji trembesi (*Samanea saman*) dan studi potensinya untuk protein fortifikasi. Penelitian ini bertujuan untuk menentukan kandungan nutrisi biji trembesi, melakukan ekstraksi protein biji trembesi pada kondisi asam, melakukan fraksinasi protein biji pI 5 dan pI 6, dan melakukan studi potensi fraksi protein biji trembesi sebagai sumber alternatif protein fortifikasi.

Analisis kandungan gizi dari biji trembesi dilakukan dengan analisis proksimat. Kadar air ditentukan dengan termogravimetri, kadar abu dengan metode pengabuan pada suhu 550 °C, kadar lemak dengan metode *Soxhlet*, kadar protein dengan metode Kjeldahl dan karbohidrat ditentukan *by different*. Ekstraksi protein dilakukan pada suasana asam dan fraksinasi metode titik isoelektrik pada pI 5 dan 6. Asam amino fraksi protein dianalisis menggunakan HPLC dengan derivatisasi menggunakan o-ftalaldehid (OPA).

Biji trembesi mengandung 6,43% air, 3,72% abu, 10,03% lemak, 34,95% protein dan 44,90% karbohidrat, dengan protein fraksi pI 5 dan pI 6 sebesar 15,98% dan 1,36%. Total kadar asam amino esensial protein fraksi pI 5 dan pI 6 masing-masing 26,23% dan 35,51%. Fraksi pI 6 memenuhi kebutuhan asam amino histidin, isoleusin dan leusin, sedangkan fraksi pI 5 hanya memenuhi kebutuhan asam amino histidin menurut FAO/WHO. Fraksi protein pI 6 berpotensi dalam fortifikasi makanan karena memiliki kandungan asam amino esensial lebih dari 30%, sedangkan fraksi pI 5 kurang berpotensi karena kandungan asam amino esensial kurang dari 30%.

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

**IDENTIFICATION OF AMINO ACID pI 5 AND pI 6 FRACTION FROM RAIN TREE SEEDS (*Samanea saman*) BY ACID EXTRACTION AND POTENTIAL STUDY AS PROTEIN FORTIFICATION**

Kurnia Nurul R  
10/300700/PA/13339

**ABSTRACT**

Identification of amino acid pI 5 and pI 6 fraction from rain tree seeds (*Samaneasaman*) and potensial study asprotein fortification have been done. This study aims are to determine the nutrient content of seeds, to extract the seed proteinat acidic pH, to fractionate using pI 5 and pI 6, and to study the potential of seed protein fraction as an alternative source of protein fortification.

Analysis of the nutritional content of the seeds were carried out by proximate analysis. Water content was determined by thermogravimetric, ash content was determined by ashing method at a temperature of 550 °C, the fat content determined by Soxhlet method, protein content determined by Kjedahl method, and carbohydrates was calculated by different. Protein was extracted in acidic conditions and fractionation method of isoelectric point at pI 5 and pI 6. The amino acid protein fractions was analyzed by HPLC used o-phtalaldehyde (OPA) derivatization.

The rain tree seeds contained 6.43% of water, 3.72% of ash, 10.03% of fat, 34.95% of protein and 44.90% of carbohydrates. The fractionation was succeeded to recover 15.98% protein for pI 5 and 1.36% protein for pI 6. The essential amino acid content of protein fractions pI 5 and pI 6 was 26.23% and 35.51% respectively. The pI 6 fraction meets the needs of the amino acid histidine, isoleucine and leucine, where as only a fraction of pI 5 which the needs of amino acids histidin based on FAO/WHO. The pI 6 fraction have potential as food fortification because it contains essential amino acids more than 30%, while the fraction of pH 5 have less potential for essential amino acid because it contains essential amino acids less than 30%.

**Keywords :** rain tree seed, protein, acid extraction, isoelectric point fractination, food fortification