

ISOLASI PROTEIN FRAKSI pI 7 DAN pI 8 BIJI LAMTORO (*Leucaena leucocephala*) DENGAN EKSTRAKSI ASAM DAN STUDI POTENSINYA SEBAGAI BAHAN FORTIFIKASI

IHSAN TARMIZI
11/316873/PA/13995

INTISARI

Isolasi protein fraksi pI 7 dan pI 8 biji lamtoro (*Leucaena leucocephala*) dan studi potensinya sebagai bahan fortifikasi pangan serta penentuan komposisi asam aminonya telah selesai dilakukan. Penelitian ini bertujuan untuk menentukan komposisi kadar air, abu, lemak, protein, dan karbohidrat dengan metode analisis proksimat, melakukan ekstraksi protein biji lamtoro pada suasana asam dan fraksinasi pada pI 7 dan pI 8, serta mengidentifikasi kandungan asam amino esensial.

Penelitian ini diawali dengan melakukan preparasi pengeringan sampel menjadi bentuk serbuk. Selanjutnya dilakukan analisis proksimat untuk menentukan kandungan gizi biji lamtoro. Kadar air ditentukan dengan gravimetri, kadar abu dengan metode pengabuan pada suhu 550 °C, kadar lemak dengan metode Soxhlet, kadar protein ditentukan dengan metode Kjeldahl, dan kadar karbohidrat ditentukan *by different*. Sampel bebas lemak diekstraksi pada suasana asam, disentrifugasi, dan diambil supernatannya. Protein diendapkan dengan fraksinasi pI 7 dan pI 8 dengan penambahan NaOH. Fraksi protein dianalisis asam aminonya dengan sistem LC-MS.

Biji Lamtoro mengandung 11,72% air, 2,99% abu, 9,96% lemak, 24,51% protein, dan 50,81% karbohidrat dengan protein fraksi pI 7 dan pI 8 masing-masing sebesar 7,63% dan 3,29%. Total kadar asam amino esensial protein fraksi pI 7 dan pI 8 masing-masing sebesar 0,97% dan 1,59%. Menurut FAO/WHO kadar asam amino esensial fraksi pI 7 dan pI 8 tersebut tidak memenuhi syarat untuk fortifikasi makanan karena kandungannya kurang dari 30%.

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

ISOLATION OF PROTEIN pI 7 AND pI 8 FRACTION FROM LAMTORO SEED (*Leucaena leucocephala*) BY ACID EXTRACTION AND STUDY OF ITS POTENTIAL AS FOOD FORTIFICATION MATERIAL

IHSAN TARMIZI
11/316873/PA/13995

ABSTRACT

Isolation of pI 7 and 8 protein fractions of lamtoro seeds (*Leucaena leucocephala*) and its potential studies as food fortification ingredient and determination of its essential amino acid components have been done. This study was aimed to determine the composition of moisture, ash, fat, protein, and carbohydrates with the proximate analysis method, extracting protein from the lamtoro seeds in acidic conditions and their fractionation on pI 7 and 8, and identifying the composition of essential amino acids.

This research began with preparation of drying samples into powder form. Then a proximate analysis was performed to determine the nutritional component of lamtoro seeds. Water content was determined by gravimetric, ash content was measured by ignition method at 550 °C, and fat was measured by with the Soxhlet method, protein content determined by the Kjeldahl method, and carbohydrate levels determined by different. Fat-free samples were extracted in an acidic atmosphere, centrifuged, and its supernatant was taken. Protein was deposited by fractionation at pI 7 and pI 8 with the addition of NaOH. The protein fraction was analyzed for an amino acid with the LC-MS system.

Lamtoro seeds were contained 11.72% water, 2.99% of ash, 9.96% fat, 24.51% protein, and 50.81% carbohydrates with protein fractions pI 7 and 8 of 7.63% and 3.29%. The total levels of essential amino acids in the fractionation protein pI of 7 and 8 were 0.97% and 1.59%, respectively. According to FAO / WHO the levels of essential amino acids from fractionation pI 7 and 8 protein of lamtoro seeds did not meet the requirements of food fortification because the content was less than 30%.

Keyword: lamtoro seed, protein, acid extraction, food fortification, isoelectric point of fractination