

**FRAKSINASI PROTEIN pI 7 DAN 8 HASIL EKSTRAKSI ASAM DAN  
BASA BIJI MELON (*Cucumis melo*) SERTA STUDI POTENSINYA  
SEBAGAI BAHAN FORTIFIKASI PANGAN**

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**INTISARI**

Telah dilakukan penelitian fraksinasi protein pI 7 dan 8 hasil ekstraksi asam dan basa biji melon (*Cucumis melo*) serta studi potensinya sebagai bahan fortifikasi pangan. Tujuan penelitian ini adalah mengetahui nilai gizi, komposisi dan kadar asam amino esensial yang terkandung dalam biji melon pada protein fraksi pI 7 dan 8, serta mempelajari potensi protein hasil fraksinasi sebagai bahan fortifikasi pangan.

Penelitian dimulai dengan melakukan analisis proksimat yang meliputi uji kadar air dengan gravimetri, uji kadar abu dengan pengabuan pada suhu 600 °C, uji kadar lemak dengan ekstraksi Soxhlet, uji kadar protein dengan metode Kjeldahl, dan uji kadar karbohidrat dengan cara *by different*. Sampel bebas lemak diekstraksi pada pH 2 (dengan HCl) dan 10 (dengan NaOH). Protein terlarut diambil kembali dengan cara pengendapan fraksinasi pada pI 7 dan 8. Endapan protein dipisahkan dengan sentrifugasi dan dikeringkan menggunakan metode *freeze drying* selama 24 jam. Analisis asam amino secara kualitatif dan kuantitatif ditentukan dengan HPLC.

Hasil analisis proksimat menunjukkan daging biji melon memiliki kadar air 8,85%, kadar abu 4,64%, kadar lemak 47,53%, kadar protein 23,30%, dan kadar karbohidrat 15,68%. Rendemen protein larut asam pI 7 dan 8 adalah 10,87% dan 8,15% dengan kadar total asam amino esensial masing-masing adalah 11,34% dan 22,44%. Rendemen protein larut basa pI 7 dan 8 adalah 94,41% dan 49,40% dengan kadar total asam amino esensial masing-masing adalah 39,70% dan 38,89%. Fraksi pI 7 dan 8 dengan pelarutan pada suasana basa memenuhi standar FAO/WHO/UNU 1985 sebagai bahan fortifikasi pangan.

Kata kunci: protein, biji melon, asam amino esensial, fortifikasi pangan

**FRACTIONATION OF PROTEIN AT pI 7 AND 8 FROM EXTRACTION OF  
CANTALOUPE SEEDS (*Cucumis melo*) USING ACID AND ALKALINE  
AND STUDY OF ITS POTENTIAL FOR FOOD FORTIFICATION**

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**ABSTRACT**

Fractionation of protein at pI 7 and 8 from cantaloupe seeds and its potential study for food fortification have been conducted. The research objectives were to determine the nutrient value, the composition and essential amino acid's content of cantaloupe seeds protein of pI 7 and 8 fraction, and to study the potential of cantaloupe seed's protein for food fortification.

Research begins with proximate analysis which involves determining of water content by gravimetric, ash content by dry ashing at 600 °C, fat content by Soxhlet extraction, protein content by Kjeldahl assay, and CHO were calculated by different of other contents. Defatted sample were extracted at pH 2 (by adding HCl) and 10 (by adding NaOH). Protein were recovered by precipitation at pI 7 and 8. Protein deposit were separated by centrifugation and freeze dried for 24 hours. Qualitative and quantitative analysis of amino acid were determined by HPLC.

Proximate analysis shows that cantaloupe seeds contains 8.85% moisture, 4.64% ash, 47.53% fat, 23.30% protein, and 15.68% CHO. The yield of protein recovered from acid solution at pI 7 and 8 were 10.87% and 8.15% with total essential amino acids respectively 11.34% and 22.44%. The yield of protein recovered from alkaline solution at pI 7 and 8 were 94.41% and 49.40% with total essential amino acids respectively 39.70% and 38.89%. The pI 7 and 8 fraction by dissolution in alkaline conditions comply the standards of FAO/WHO/UNU 1985 as food fortificant.

Keywords: protein, cantaloupe seeds, essential amino acid, food fortification