

**FRAKSINASI PROTEIN pI 7 DAN 8 HASIL EKSTRAKSI ASAM DAN  
BASA BIJI LABU MERAH (*Cucurbita moschata* (Duch.) Poir) SERTA  
STUDI POTENSINYA SEBAGAI BAHAN FORTIFIKASI PANGAN**

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**INTISARI**

Telah dilakukan fraksinasi protein pI 7 dan 8 hasil ekstraksi asam dan basa biji labu merah (*Cucurbita moschata* (Duch.) Poir) serta studi potensinya sebagai bahan fortifikasi pangan. Fortifikasi pangan dilakukan untuk mengatasi kasus kekurangan energi protein yang masih tinggi di Indonesia. Biji labu merah dipilih sebagai sumber fortifikasi pangan karena termasuk dalam sumber protein yang cukup berkualitas.

Serbuk biji labu merah dibuat dengan menggiling biji labu kupas kering. Serbuk biji labu merah didefatisasi dengan ekstraksi Soxhlet menggunakan pelarut petroleum eter 40-60 °C. Isolasi protein dilakukan dengan melarutkan serbuk biji labu bebas lemak dengan akuades pada pH 2 dan 10. Protein diambil kembali dengan pengendapan melalui pengaturan pI 7 dan 8 dengan NaOH dan HCl. Endapan protein dipisahkan dengan sentrifugasi 3000 rpm dan dikeringkan dengan pengering beku selama 24 jam. Komposisi asam amino ditentukan menggunakan HPLC.

Hasil analisis proksimat menunjukkan biji labu merah kupas kering mempunyai kadar air, kadar abu, kadar lemak, kadar protein, dan kadar karbohidrat berturut-turut 6,69, 5,02, 43,09, 23,09, dan 22,11%. Protein yang diperoleh dari larutan asam pI 7 dan pI 8 adalah 10,31 dan 17,96% dengan total asam amino esensial 10,11 dan 7,32%. Protein yang diperoleh dari larutan basa pI 7 dan 8 adalah 46,49 dan 8,26% dengan total asam amino esensial 30,72 dan 17,11%. Fraksi protein pI 7 dari larutan basa memenuhi standar minimal total asam amino esensial 30% dan standar menurut FAO/WHO/UNU 1985 sehingga dapat dinyatakan berpotensi sebagai bahan fortifikasi pangan.

Kata kunci : protein, biji labu merah, asam amino esensial, fortifikasi pangan

**FRACTIONATION OF PROTEIN AT pI 7 AND 8 FROM EXTRACTION OF PUMPKIN SEEDS (*Cucurbita moschata* (Duch.) Poir) USING ACID AND BASE AND STUDY OF POTENTIAL FOR FOOD FORTIFICATION**

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**ABSTRACT**

Fractination of protein at pI 7 and 8 from extraction of pumpkin seeds (*Cucurbita moschata* (Duch.) Poir) using acid and base and study of potential for food fortification had been conducted. Food fortification was carried out to solve protein-energy malnutrition that still high in Indonesia. Pumpkin seeds was selected as the source for food fortification included in sufficient quality protein source.

The pumpkin seeds powder was prepared by grinding dry peeled seeds. The pumpkin seeds powder was defatted by Soxhlet extraction using petroleum eter 40-60 °C. The isolation of protein was performed by dissolving the defatted pumpkin seeds powder in aquadest at pH 2 and 10. Protein was reobtained by precipitation at pI 7 and 8 using NaOH and HCl. The protein deposit was separated by centrifugation at 3000 rpm and freeze dried for 24 hours. The amino acid composition was determined by HPLC analysis.

The proximate analysis shows that pumpkin seeds has moisture, ash, fat, protein, and carbohydrate contents of 6.69, 5.02, 43.09, 26.27, and 18.49% respectively. Protein that was obtained from acid solution at pI 7 and pI 8 was 10,30% and 17,96% with total essential amino acids of 10.11 and 7.32% respectively. Protein that was obtained from alkaline solution at pI 7 and 8 was 46.49% and 8.26% with total essential amino acids of 30.72 and 17.11% respectively. Protein fraction at pI 7 in alkaline solution meet the minimal standart of essential amino acids in total of 30% and the standard by FAO/WHO/UNU 1985 which is potential as food fortification.

Keywords: protein, pumpkin seeds, essential amino acids, food fortification