

**FRAKSINASI KOLOM PENUKAR KATION TERHADAP
PROTEIN PRODUK SAMPING INDUSTRI IKAN TENGGERI DAN STUDI
POTENSI FRAKSI HASIL SEBAGAI FORTIFIKAN PROTEIN**

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INTISARI

Telah dilakukan penelitian fraksinasi kolom penukar kation terhadap protein produk samping industri ikan tenggiri dan studi potensi fraksi hasil sebagai fortifikan protein. Tujuan penelitian adalah untuk mendapatkan fraksi protein yang berpotensi digunakan untuk bahan fortifikasi protein.

Penelitian dimulai dengan preparasi sampel limbah ikan tenggiri melalui proses pencucian, penghancuran, pengeringan dan penggilingan. Komposisi serbuk ikan tenggiri ditentukan dengan analisis proksimat. Serbuk ikan tenggiri dibuat bebas lemak dengan ekstraksi Soxhlet. Protein dalam sampel bebas lemak diekstraksi pada pH 2,5 dengan penambahan HCl 2 M. Ekstrak protein difraksinasi dengan kromatografi kolom resin penukar kation dengan variasi pH 3, 4, 5, 6, 7 dan 8. Setiap fraksi protein ditentukan komposisi asam amino dengan menggunakan kromatografi cair kinerja tinggi (KCKT) dengan derivatisasi OPA (0-phtalaldehida).

Hasil penelitian menunjukkan protein dapat diisolasi menggunakan metode ekstraksi asam dan menghasilkan rendemen sebesar 90,15%. Protein dapat difraksinasi dengan kromatografi kolom penukar kation. Komposisi asam amino esensial pada fraksi pH 6 dengan kandungan asam amino esensial histidin (0,45%), arginin (3,81%), metionin (4,63%), valin (5,72%), fenilalanin (0,53%), isoleusin (3,82%), leusin (6,62%), lisin (3,17%), treonin (2,91%) serta fraksi pH 7 dengan kandungan asam amino esensial arginin (1,25%), metionin (4,39%), valin (5,24%), fenilalanin (0,62%), isoleusin (3,39%), leusin (5,16%), lisin (3,17%), treonin (2,91%) merupakan fraksi protein yang berpotensi sebagai fortifikan protein berdasarkan nilai skor kimia asam amino esensialnya.

Kata kunci : ekstraksi asam, fraksinasi protein, fortifikasi protein, kromatografi penukar kation.

**CATION EXCHANGED FRACTIONATION OF PROTEIN OF NARROW-
BARRED SPANISH MACKEREL INDUSTRY BYPRODUCT AND
POTENCY STUDY FRACTION AS PROTEIN FORTIFICANT**

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ABSTRACT

A research on cation exchanged fractionation of protein of narrow-barred spanish mackerel industry byproduct and potency study of the fraction as protein fortificant has been conducted. The purpose of this study were to determine the nutritional composition, isolate the proteins of and to see their potency as protein fortificant based on the amino acids composition.

The research were started with preparation of samples of mackerel fish waste through the process of washing, crushing, drying and grinding. A proximate analysis was employed mainly aimed to determine the protein content the sample. The protein in the fat-free samples were extracted at pH 2.5 through the addition of HCl 2 M. Protein fractionation was carried out by cation exchanged chromatography eluted at pH 3, 4, 5, 6, 7 and 8. Amino acid analysis of the protein fraction used high performance liquid chromatography (HPLC) with OPA derivatitation.

The result of the experiment showed that protein can be isolated using acid extraction methods and resulted 90.15% of yield. Proteins of pH 6 fraction, with the essential amino acids content histidine (0.45%), arginine (3.81%), methionine (4.63%), valine (5.72%), phenylalanine (0.53%), isoleucine (3.82%), leucine (6.62%), lysine (3.17%), threonine (2.91%) and pH 7 fraction, with amino acids content arginine (1.25%), methionine (4.39%), valine (5.24%), phenylalanine (0.62%), isoleucine (3.39%), leucine (5.16%), lysine (0.98%), threonine (4.03%) are potential as protein fortificant based on their chemical score.

Keywords : acid extraction, protein fractionation, protein fortificant, cation exchange chromatography.