

## ABSTRAK

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### **PENGARUH PRA-PERLAKUAN DAN SUHU EKSTRAKSI TERHADAP KARAKTERISTIK GELATIN DARI SISIK IKAN MUJAIR (*Oreochromis mossambicus*)**

Skripsi, Fakultas Sains dan Teknologi (2019).

(xv + 70 halaman; 21 gambar; 9 tabel; 6 lampiran)

Sisik ikan mujair (*Oreochromis mossambicus*) dapat dimanfaatkan sebagai bahan alternatif pembuatan gelatin yang halal. Penelitian pendahuluan bertujuan untuk menentukan konsentrasi HCl dan lama perendaman yang menghasilkan sisik demineralisasi terpilih yang akan diekstraksi pada penelitian utama. Sisik ikan mujair diberi pra-perlakuan berupa perlakuan demineralisasi dengan konsentrasi HCl 0, 3, 4, 5% selama 8, 16, dan 24 jam. Sisik demineralisasi terpilih adalah sisik dengan perlakuan HCl 4% selama 16 jam karena memiliki kadar protein tertinggi ( $92,28 \pm 2,26\%$ ) dan kadar abu rendah ( $0,18 \pm 0,14\%$ ). Pada penelitian utama, sisik demineralisasi terpilih diekstraksi pada suhu 60, 70, dan 80°C. Penelitian utama bertujuan untuk menentukan suhu ekstraksi gelatin terbaik berdasarkan analisis karakteristik fisik dan kimia gelatin. Suhu ekstraksi terbaik diperoleh pada suhu 70°C yang menghasilkan gelatin terpilih dengan karakteristik fisik berupa rendemen ( $18,64 \pm 0,59\%$ ), viskositas ( $29,25 \pm 1,02$  cP), kekuatan gel ( $280,02 \pm 12,53$  Bloom), titik leleh ( $34,00 \pm 1,26^\circ\text{C}$ ), titik jendal ( $18,17 \pm 0,75^\circ\text{C}$ ), derajat putih ( $52,54 \pm 2,19\%$ ), dan karakteristik kimia yakni pH ( $4,34 \pm 0,12$ ), kadar air ( $9,24 \pm 0,08\%$ ), kadar lemak ( $1,16 \pm 0,06\%$ ), kadar abu ( $0,26 \pm 0,01\%$ ), kadar protein ( $88,66 \pm 3,15\%$ ), glisin (39,08 mg/g protein), serta prolin (88,36 mg/g protein). Kemudian gelatin terpilih dibandingkan dengan gelatin komersial. Hasil penelitian menunjukkan gelatin terpilih telah memenuhi standar gelatin SNI (1995) dan GMIA (2012) kecuali parameter viskositas dan derajat putih. Gelatin terpilih memiliki viskositas yang lebih baik dibandingkan gelatin komersial.

Kata Kunci: demineralisasi, ekstraksi, gelatin, sisik ikan, mujair

Referensi: 109 (1975-2018)

## **ABSTRACT**

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### ***EFFECT OF PRE-TREATMENT AND EXTRACTION TEMPERATURE ON GELATIN CHARACTERISTICS OF THE MUJAIR FISH SCALES (Oreochromis mossambicus)***

*Thesis, Faculty of Science and Technology (2019).*

*(xv + 70 pages, 21 figures, 9 tables, 6 appendices)*

*Mujair fish scales (Oreochromis mossambicus) can be used as an alternative ingredient in making halal gelatin. The preliminary research aims to determine HCl concentration and immersion time which results in selected demineralization scales which will be extracted in the main study. Mujair scales were given initial treatment in the form of demineralization treatment with HCl concentrations of 0, 3, 4, 5% for 8, 16, and 24 hours. Selected demineralized scales are scales by treating of 4% HCl for 16 hours due to having the highest protein content ( $92.28 \pm 2.26\%$ ) and low ash content ( $0.18 \pm 0.14\%$ ). In the main study, selected demineralization scales were extracted at 60, 70 and 80°C. The main research was to determine the gelatin extraction temperature toward the physical and chemical quality of gelatin. The best extraction temperature was obtained at 70°C which produced gelatin with the physical properties of the yield ( $18.64 \pm 0.59\%$ ), viscosity ( $29.25 \pm 1.02$  cP), gel strength ( $280.02 \pm 12.53$  Bloom), melting point ( $34.00 \pm 1.26^\circ\text{C}$ ), gelling point ( $18.17 \pm 0.75^\circ\text{C}$ ), white degree ( $52.54 \pm 2.19\%$ ), and chemical characteristics as pH ( $4.34 \pm 0.12$ ), moisture content ( $9.24 \pm 0.08\%$ ), fat content ( $1.16 \pm 0.06\%$ ), ash content ( $0.26 \pm 0.01\%$ ), protein levels ( $88.66 \pm 3.15\%$ ), glycine (39.08 mg/g protein), and proline (88.36 mg/g protein). Then the selected gelatin was compared to commercial gelatin. The results showed that selected gelatins had met SNI (1995) and GMIA (2012) gelatin standards except for viscosity and white degrees. Selected gelatin has better viscosity than commercial gelatin.*

*Keywords: demineralization, extraction, fish scales, mujair*

*References: 109 (1975-2018)*