

ABSTRAK

HIDROLISAT KOLAGEN TULANG IKAN GABUS (*Channa Striata*) DENGAN METODE ENZIMATIS UNTUK CAMPURAN PRODUK SUSU

(Nasya Apriani Adzhmanisa, 2025, 45 Halaman, 12 Tabel, 4 Lampiran)

Kolagen adalah protein struktural utama dalam jaringan tubuh hewan dan banyak ditemukan pada kulit, tulang, dan tendon. Pemanfaatan Tulang Ikan Gabus belum dimanfaatkan secara optimal, padahal tulang ikan gabus mengandung protein cukup tinggi dan dapat diolah menjadi produk bernilai, seperti kolagen dan dapat membantu mengurangi pencemaran lingkungan. Kolagen memiliki banyak manfaat, yaitu membantu meningkatkan elastisitas kulit, mengurangi munculnya garis halus dan kerutan, meningkatkan kelembaban kulit dan lain-lain. Penelitian ini bertujuan menentukan kondisi optimum hidrolisis kolagen dari tulang ikan gabus secara enzimatis, menentukan suhu dan waktu pengeringan untuk memperoleh serbuk kolagen bermutu sesuai SNI 8076:2020, serta mengevaluasi formulasi susu bubuk kolagen yang setara dengan produk komersial. Variasi konsentrasi enzim papain yang digunakan adalah 0,5%, 1%, 1,5% dan 2% dan variasi suhu 50 °C, 60 °C dan 70 °C dan variasi suhu pengeringan 50 °C, 55 °C dan 80 °C, dan waktu pengeringan 6 jam, 8 jam dan 10 jam. Pengujian produk meliputi viskositas, rendemen, kadar air, kadar abu, dan kadar protein. Perlakuan terbaik diperoleh pada konsentrasi enzim 1,5%, suhu dihidrolisis 60 C, Suhu pengeringan 55°C dan waktu pengeringan 8 jam. Dengan hasil rendemen sebanyak 1,52%, kadar air 2,38%, kadar abu 0,93% dan kadar protein 38,73%. Pada produk susu kolagen diperoleh hasil terbaik pada penambahan susu bubuk 15 gr dan serbuk kolagen 1 gr dengan viskositas 1,51 Cp dan kadar protein 2,39%. Dimana kadar air dan kadar abu pada serbuk kolagen telah memenuhi Standar Nasional Indonesia (SNI 8076:2020), Kadar protein pada susu kolagen telah memenuhi Standar Nasional Indonesia (SNI) 8418:2018

Kata kunci : kolagen, tulang ikan gabus, enzim papain, susu kolagen

ABSTRACT

HYDROLYSATE COLLAGEN FROM SNAKEHEAD FISH BONE (*Channa Striata*) USING ENZYMATIC METHOD AS A MILK PRODUCT ADDITIVE

(Nasya Apriani Adzhmanisa, 2025, 45 Pages, 12 Tables, 4 Appendix)

*Collagen is the main structural protein in animal tissues, commonly found in the skin, bones, and tendons. The utilization of snakehead fish (*Channa striata*) bones has not been optimized, even though they contain a high protein content and can be processed into valuable products such as collagen, while also helping reduce environmental pollution. Collagen offers numerous benefits, including improving skin elasticity, reducing the appearance of fine lines and wrinkles, and enhancing skin moisture. This study aims to determine the optimum conditions for enzymatic hydrolysis of collagen from snakehead fish bones, to identify the appropriate drying temperature and time to produce high-quality collagen powder in accordance with SNI 8076:2020, and to evaluate a collagen milk powder formulation comparable to commercial products. The papain enzyme concentrations used were 0.5%, 1%, 1.5%, and 2%, with hydrolysis temperatures of 50 °C, 60 °C, and 70 °C. Drying was carried out at 50 °C, 55 °C, and 80 °C for durations of 6, 8, and 10 hours. The parameters tested included viscosity, yield, moisture content, ash content, and protein content. The best treatment was obtained with 1.5% enzyme concentration, hydrolysis temperature of 60 °C, drying temperature of 55 °C, and drying time of 8 hours, resulting in a yield of 1.52%, moisture content of 2.38%, ash content of 0.93%, and protein content of 38.73%. The best collagen milk product was achieved with 15 g of milk powder and 1 g of collagen powder, producing a viscosity of 1.51 cP and a protein content of 2.39%. The moisture and ash contents of the collagen powder met the Indonesian National Standard (SNI 8076:2020), and the protein content in the collagen milk met SNI 8418:2018.*

Keywords: collagen, snakehead fish bone, papain enzyme, collagen milk