KARAKTERISASI GELATIN YANG DIEKSTRAKSI DARI KULIT KERBAU MENGGUNAKAN *CRUDE ACID PROTEASE* ABOMASUM SAPI

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INTISARI

Gelatin adalah protein yang diperoleh melalui hidrolisis kolagen dan paling banyak ditemukan pada kulit, tulang, tulang rawan, dan jaringan ikat putih hewan. Diversifikasi sumber kolagen sebagai bahan baku pada ekstraksi gelatin dapat dilakukan dengan memanfaatkan kulit kerbau. Penelitian ini menggunakan abomasum sapi sebagai sumber *Crude Acid Protease* (CAP) yang digunakan untuk menghidrolisis gelatin dari kulit kerbau. Hasil ekstraksi CAP melalui pengendapan amonium sulfat 75-100% menghasilkan aktivitas enzim 2916,44 U/ml. Hasil optimasi pH dan suhu menggunakan hemoglobin sebagai substrat yaitu optimal pada pH 3 dan suhu 40 ^{o}C. Hasil SDS-PAGE menunjukkan bahwa CAP dari abomasum sapi memiliki berat molekul sekitar 41-45 kDa. Konsentrasi CAP 5U/g dan suhu hidrolisis enzim 40 ^{o}C menghasilkan nilai *yield* tertinggi yaitu 26,83%, pH 3,89, viskositas 7,47 cP, kekuatan gel 212,24 g Bloom, tingkat kecerahan warna gelatin (L*) 7,20, warna merah (a*) 5,02, dan warna kuning (b*) 15,14, protein 92,56%, kadar air 7,57%, kadar abu 0,33%, dan kadar lemak 0,51%. Karakteristik gelatin kulit kerbau dengan *pretreatment crude acid protease* dari abomasum sapi telah memenuhi standar kualitas *Gelatin Manufacturing Institute of America* (2012).

Kata Kunci: *gelatin, kulit kerbau, crude acid protease, abomasum sapi,*

CHARACTERIZATIONS OF GELATIN EXTRACTED FROM BUFFALO SKIN BY USING CATTLE ABOMASUM CRUDE ACID PROTEASE

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ABSTRACT

Gelatin is protein obtained from hydrolysis of collagen and frequently found on animal skin, bones, cartilages, and white connective tissues. Diversification of collagen sources as the main material of gelatin extraction can be performed by exploiting buffalo. This research employs cattle abomasum as the source of Crude Acid Protease (CAP) used to hydrolyze gelatin from buffalo skin. Extraction results of CAP using precipitation stage of ammonium sulfate 75-100% result the enzyme activity of 2916.44 U/ml. Results of pH and temperature optimizations using hemoglobin as the substrate show that the optimal points are 3 on pH and 40 ºC on temperature. Results of SDS-PAGE show that CAP from cattle abomasum has molecular weight which is 41-45 kDa. CAP concentration 5U/g and enzyme hydrolysis temperature 40 ºC produce the highest yield value which is 26.83%, 3.89 on pH, 7.47 cP on viscosity, 212.24 g Bloom on gel strength, 7.80 on gelatin brightness (L*), 5.02 on red (a*), 15.14 on yellow (b*), 92.56% on protein, 7.20% on moisture, 0.53% on ash content, and 0.33% on fat. Buffalo skin gelatin characteristics with pretreatment crude acid protease from cattle abomasum have fulfilled quality standards of Gelatin Manufacturing Institute of America (2012).

Keywords: gelatin, buffalo, crude acid protease, cattle abomasum