

KUALITAS GELATIN KULIT KAKI SAPI YANG DIPRODUKSI MENGUNAKAN ENZIM PAPAIN DENGAN BERBAGAI KONSENTRASI

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INTISARI

Gelatin adalah bahan pangan yang diperoleh dari proses ekstraksi kolagen yang terdapat pada kulit, tulang maupun jaringan ikat hewan. Ekstraksi gelatin dapat dilakukan secara asam, basa, dan penambahan enzim. Enzim yang dapat digunakan dalam ekstraksi gelatin yaitu enzim papain. Tujuan penelitian ini untuk mengetahui pengaruh penambahan enzim papain berbagai konsentrasi pada proses produksi gelatin dari kulit kaki sapi terhadap kualitas gelatin yang dihasilkan. Penelitian dilakukan dengan menggunakan 4 perlakuan dalam proses ekstraksi gelatin antara lain perlakuan P0 dengan enzim 0 u/g. Perlakuan ke 1 (P1) dengan enzim sebanyak 10 u/g. Perlakuan ke 2 (P2) menggunakan enzim sebanyak 15 u/g dan perlakuan ke 3 (P3) menggunakan enzim sebanyak 20 u/g. parameter uji yang digunakan meliputi uji rendemen, uji pH, kekuatan gel, kadar air, kadar abu, kadar protein dan *SDS PAGE*. Penelitian dilakukan pengulangan sebanyak 3 kali lalu data yang diperoleh dianalisa menggunakan analisis variansi rancangan acak lengkap pola searah dan dilanjutkan dengan uji *Duncan Multiple Range Test (DMRT)* $\alpha = 0,05$. Hasil data analisis statistik menunjukkan terdapat perbedaan nyata yang signifikan ($p < 0,05$) untuk nilai rendemen, pH, kekuatan gel, dan kadar air gelatin yang diproduksi, tetapi tidak terdapat perbedaan nyata pada hasil uji kadar abu dan kadar protein. Hasil uji *SDS PAGE* diperoleh kisaran 45 kDa hingga 160 kDa. Kesimpulan penelitian ini yaitu konsentrasi enzim papain yang paling efektif untuk digunakan dalam proses ekstraksi gelatin yaitu enzim dengan konsentrasi sebesar 20 u/g.

Kata kunci: kulit kaki sapi, enzim papain, kualitas gelatin, dan berat molekul

QUALITY OF COW FOOT SKIN GELATIN PRODUCED USING PAPAIN ENZYME WITH VARIOUS CONCENTRATIONS

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ABSTRACT

Gelatin is a food ingredient obtained from the extraction process of collagen found in the skin, bones and connective tissue of animals. Gelatin extraction can be carried out by acids, bases, and the addition of enzymes. The enzyme that can be used in gelatin extraction is papain enzyme. The purpose of this study was to determine the effect of the addition of the enzyme papain at various concentrations in the production process of gelatin from cow's feed hide on the quality of the gelatin produced. The research was conducted using 4 treatments in the gelatin extraction process, including P0 treatment with 0 u/g enzyme. The P1 treatment with the enzyme as much as 10 u/g. The second treatment (P2) used 15 u/g of enzyme and the third treatment (P3) used 20 u/g of enzyme. The test parameters were yield, pH test, gel strength, moisture content, ash content, protein content and SDS PAGE. The study was repeated 3 times and the data obtained were analyzed using analysis of variance in a completely randomized design with a unidirectional pattern and continued with the Duncan Multiple Range Test (DMRT) = 0.05. The results of statistical analysis data showed that there were significant differences ($p < 0.05$) for the yield value, pH, gel strength, and water content of the gelatin produced, but there was no significant difference in the results of the ash content and protein content tests. The results of the SDS PAGE test obtained a range of 45 kDa to 160 kDa. The conclusion of this study is that the most effective papain enzyme concentration used in the gelatin extraction process is the enzyme with a concentration of 20 u/g.

Keywords: Cow feet hide, Papain enzyme, Quality of gelatin, and molecular weight.