POTENSI PENGGUNAAN BAKTERIOSIN *Lactiplantibacillus plantarum* TERHADAP KUALITAS BIOPRESERVASI KULIT SEGAR DOMBA

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INTISARI

Penelitian ini bertujuan untuk mengetahui efektivitas *crude* bakteriosin dari *Lactiplantibacillus plantarum* sebagai agen biopreservasi alternatif dalam pengawetan kulit domba. Penelitian ini dilakukan dengan dua perlakuan, yaitu pengawetan kulit dengan garam 50% sebagai kontrol (P0), dan penggunaan *crude* bakteriosin 15% (P1) sebagai perlakuan uji. Parameter yang diamati meliputi kualitas kimia (kadar air, pH, *extractable nitrogen*), kualitas mikrobiologi (*total plate count*, total bakteri asam laktat, total coliform), beban polutan limbah cair *soaking* (*total solid, total fixed solid, total volatile solid, chemical oxygen demand, biological oxygen demand*), dan pengamatan morfologi permukaan kulit menggunakan *scanning electron microscope* (SEM). Hasil penelitian menunjukkan bahwa P1 secara signifikan mampu menurunkan kadar air kulit, menjaga kestabilan pH, dan menghambat degradasi protein dibandingkan dengan perlakuan garam. Nilai TPC dan coliform pada P1 lebih tinggi, namun pengamatan visual dan hasil SEM menunjukkan bahwa kulit tetap dalam kondisi baik tanpa indikasi pembusukan. P1 200,52 ± 132,16 ppm menunjukan nilai *extractable nitrogen* yang berbeda nyata ($P<0.05$) dibandingkan P0 1194,58 ± 546,6 ppm. Kandungan TS dari perlakuan P1 dan P0 pada limbah cair soaking menunjukan perbedaan yang nyata ($P<0.05$) dengan nilai secara berturut turut 65864,34 ± 9223,24 mg/L dan 9833,18 ± 1702,17 mg/L. Namun, BOD dan COD yang didapat lebih tinggi daripada P0. Hasil penelitian menujukkan P1 memiliki potensi sebagai bahan pengawet kulit yang efektif dan ramah lingkungan dengan kemampuan mempertahankan kualitas kulit dan mengurangi beban polusi limbah cair dari proses pengawetan.

Kata kunci: Biopreservasi, *Crude* bakteriosin, Plantarisin, Kulit domba

Potential Application of *Lactiplantibacillus plantarum* Bacteriocin in Enhancing the Biopreservation Quality of Fresh Sheep Skin

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ABSTRACT

This study aimed to evaluate the effectiveness of crude bacteriocin from Lactiplantibacillus plantarum as an alternative biopreservative agent in sheep skin preservation. The experiment was carried out using two treatments: skin preservation with 50% salt as the control (P0) and preservation with 15% crude bacteriocin (P1) as the test treatment. The parameters observed included chemical quality (moisture content, pH, extractable nitrogen), microbiological quality (total plate count, total lactic acid bacteria, total coliform), pollutant load of soaking wastewater (total solids, total fixed solids, total volatile solids, chemical oxygen demand, biological oxygen demand), and surface morphology of the skin using a scanning electron microscope (SEM). The results showed that P1 significantly reduced skin moisture content, maintained pH stability, and inhibited protein degradation compared to salt treatment. Although TPC and coliform counts were higher in P1, visual observations and SEM analysis confirmed that the skin remained in good condition without signs of spoilage. The extractable nitrogen value in P1 (200.52 ± 132.16 ppm) was significantly lower ($P<0.05$) than in P0 (1194.58 ± 546.6 ppm). The total solids content of soaking wastewater in P1 and P0 also showed significant differences ($P<0.05$), with values of 65,864.34 ± 9223.24 mg/L and 9,833.18 ± 1702.17 mg/L, respectively. However, BOD and COD levels in P1 were higher than in P0. Overall, the findings suggest that P1 has strong potential as an effective and environmentally friendly skin preservative, capable of maintaining skin quality while reducing the pollutant load in soaking wastewater.

Keywords: Biopreservation, *Crude* bacteriocin, Plantaricin, Sheep skin