Abstract

The work describes the production, formulation and application of bating enzymes during bating process of leather manufacturing. For this purpose, five different protease producing strains of bacteria and two strains of fungi were used in the present studies which were obtained from culture bank of Institute of Industrial Biotechnology, GC University Lahore. Out of seven different strains, *Aspergillus niger* and *Bacillus subtilis* designated as N-309 and C-309 respectively, were found to show maximum proteolytic activities of 9.12 U/ ml and 9.11 U/ml respectively. Both these strains were finally selected for the production of bating enzymes. Physical parameters such as initial pH, incubation temperature, fermentation period and inoculum size were also conformed. *Bacillus subtilis* produced maximum protease (9.11 U/ ml) after 48 hrs of incubation at 37°C and at pH 8 while *Aspergillus niger* secreted maximum alkaline protease (9.12 U/ ml) after 72 hrs of incubation at 37C and at pH 8. For both strains, optimum inoculum was found as 4% v/v respectively. Proteases from such strains were partially purified by using 70% ammonium sulphate and finally converted into power form with help of lyophilizor unit. Pancreatic proteases were isolated from bovine pancreas, partially purified at 85% ammonium sulphate precipitation and finally converted in to power form. The power form of bating enzymes was used during bating process, as individually bate and in formulated form of different sources respectively. Individual bate of panaceas and formulated bate of bacterial, fungal and pancreas, showed an excellent after bating process during leather formation. Finished leather of such treatments were physically tested and showed excellent tear and tensile strength.