

ABSTRACT

The present study is concerned with the application of alkaline protease from *Bacillus subtilis* for dehairing of goatskin pieces. Alkaline protease was produced from *Bacillus subtilis* in shake flask experiments and a maximum enzyme activity 6.0U/ml was obtained. In the lab scale experiments, the process of dehairing was accelerated by the optimization of experimental conditions and by the addition of a penetrant. The complete removal of hairs occurred from the skin pieces after 3 hrs of enzyme treatment at 13.0 pH, 35°C temperature and 3:1 ratio of enzyme and penetrant, respectively, without damaging the hair texture and skin grain pattern. Then the process was scaled up to the industrial level. Soaked goat skins were treated separately, with crude enzyme preparation and concentrated enzyme preparation by dip and paint methods under defined conditions along with the control, Lime-Sulfide treatment. The best results with the skin processing were obtained when the skin was treated with concentrated enzyme. The quality of wetblue (Area, appearance, plumping, etc) and physical properties of the finally prepared crust leather (Tensile strength and Tear strength) were also improved with the use of concentrated protease. There was remarkable reduction in BOD, COD and TDS of effluent produced as a result of enzymatic treatment.