

## Biotechnology in Leather Industry

*Aline Dettmer\*, Mariliz Gutterres, Luciani A. Amaral, Franck R. Souza*

Laboratory for Leather and Environment Studies (LACOURO), Department of Chemical Engineering, Federal University of Rio Grande do Sul, Luiz Englert str., s/n°, 90.040-040, Porto Alegre – RS, Brazil

\*Corresponding author, Email: alinedet@enq.ufrgs.br

**Abstract:** There are any definitions for biotechnology, in according with the convention about biology diversity of ONU: “Biotechnology is the use of knowledge about biologic processes and about living beings proprieties, with the end to resolve problems and create utility products”. In recent years, industries have seen a growth in the use of biotechnology, using processes like biocatalyst and biotransformation. The use of biotechnology presents a lot of advantages for industries. Some advantages are: commonly the reaction or biotechnological processes occur at low temperatures and at atmospheric pressure, the process has a high space-time yield, renewable ingredients and in many cases we have a reduction of environment impact. In leather production, biotechnology, mostly using enzymes, can be applied in different steps of process: soaking, unhairing, bating, dyeing, degreasing or in effluent and proteinaceous solid wastes treatment. Researches realized in LACOURO study the removal of chromium from the sawing generated during the setting of leather thickness through enzymatic action, obtaining reduction of 53.7% of residues mass. The group also studies the treatment with bacterial reduction, *Pseudomonas aeruginosas*, obtaining reduction of 57% of chromium quantity present initially. In other studies, enzymes were applied during soaking and liming, obtaining a decrease of quantity of water used during the process and less chemical products were added. Samples were examined by scanning electron microscopy. So, biotechnology can be used in leather production and it will contribute for the reduction of pollution, principally, of soil and water.

**Key words:** biotechnology; leather; enzymes