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Preparation of nano-fat liquor cum retanning agent from fleshing waste: Wealth from the waste approach

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Fleshing wastes are generated from tanneries during leather processing. These wastes contain a significant quantity of protein and fat and currently being wasted into dumping sites or in open areas, consequently creating the fleshing waste disposal as a major environmental problem of the tanning industries throughout the world. The objective of this work is to develop fat liquor cum retanning agent from the fleshing waste. The fat extracted from the fleshing was characterized for iodine, saponification and acid value. The fleshing hydrolysate was characterized for the degree of hydrolysis, solid content, molecular weight, particle size, and zeta potential measurement. The leathers were not found to be greasy, indicating that the product penetrated into the leather matrix. The particle size of the prepared product fell down in the range of the commercially available retanning agents. The leather physical characterization with this new product was compared with that of control leather processed with commercial agent almost the same. Organoleptic properties were evaluated by experts and found to be on par with that of the control leathers. This study proves that the protein and fat from fleshing wastes can be utilized to make a beneficial product and also answers the disposal problem associated with the solid waste generated from tanning industries.

Biography

Wintana Kassahun received the BSc Degree in Industrial Chemistry from the University of Bahir Dar, Ethiopia, in 2009, and MSc Degree in Chemical engineering (Leather technology) from CLRI (Central leather research institute), Chennai in India and AAiT (Addis Ababa Technology Institute), and Addis Ababa in Ethiopia in 2014. In 2010, she joined Leather Industry Development Institute (LIDI) in the leather technology directorate department, as junior and Assistance Researcher, and in 2016 became a Researcher and then Senior Leather Researcher. At the same time, she was given a Lecturer post at the University of AAiT, AASTU, Ethio-China Institute and training for industrial workers. She have over seven years of experience mainly in the leather technology and a lecturer. She have been trained on different technologies by CLRI expert during benchmarking and had taken different training in India and China on cleaner technology and leather finishing techniques. Currently, she is working at Ethiopia Biotechnology institute in Nanotechnology Directorate as an Associative Researcher.

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