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PRACTICAL WAYS OF EXTRACTING KERATIN FROM KERATINOUS WASTES AND BY-PRODUCTS: A REVIEW

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Abstract

Renewable resources, biopolymers and bio-based materials are keywords of the sustainable development and environmental sustainability concepts. Biopolymers, the green alternatives to fossil fuel based polymers, have already found different feasible applications, from consumer goods to regenerative medicine. Keratin is the biopolymer contained in the skin derivatives and appendages and is one of the the proteins with the most sophisticated architecture nature could produce. It is found in huge quantities in materials regarded as by-products or wastes with negative environmental impact but with high potential, for which it is desirable to develop valorization solutions. The increased interest towards biopolymers and renewable resources determined a large body of research and practical work concerning keratin extraction from different sources and regeneration into useful products. It is the aim of this paper to review the conventional chemical pathways and environmentally friendly alternatives for keratin solubilization as it regards the mechanisms, process parameters, characteristics of the obtained keratin forms, environmental and economical aspects. Current and possible applications of the solubilized keratin forms are also shortly reviewed.

Key words: biopolymer, biomaterial, keratin solubilization, keratinous wastes, renewable resources

Received: March, 2015; Revised final: February, 2016; Accepted: April, 2016
