Tilicine: Hair Protection with Novel Biopolymers

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Keyword: Linden = Lime tree

Abstract

Exposure to various external harmful agents such as UV light, permanent waving and colouring can result in dry, rough and damaged hair. A natural promising active to protect hair from damage has been developed. This active, Tilicine, obtained from fresh linden buds by a cryo-extraction process, has been selected for its beneficial effect on hair moisturizing and scale lifting.

Rich in Biopolymers which are polysaccharids formed by a rhamnogalacturonan skeleton, Tilicine presents an exceptional viscoelasticity that is associated to the high degree of acetylation of the polysaccharids complex. Thanks to its composition, Tilicine can be deposited as a film at the surface of the hair which results in inter-fibre friction decrease and protection of the cuticle. Beyond this coating effect, clinical studies have shown that Tilicine also has a significant moisturizing effect. With these properties, Tilicine is an active particularly well adapted for use in shampoos for dry hair, in conditioners and in hair styling products.

Introduction

Hair is not known to serve any physiological function in human beings, but it is taking on more and more social importance. Hair care is a major area for new developments of actives that are able to maintain hair condition.

Exposed to UV light, wind, dry atmospheres, dyeing, curling and permanent waving, hair becomes dry, rough and damaged. Promising actives are being developed for protecting hair against harmful conditions. These actives are used for styling, smoothing effect and for protection during extended dyeing of the hair.

This article focuses on the development of a new and natural ingredient, Tilicine. This active is made up of natural biopolymers. It has a moisturizing and protective effect on hair.

Hair structure

Hair is a mass of keratin made by the hair follicle. There are two basic parts, the root and the stem. The root is the part between the hair bulb and the sebaceous gland located at the beginning of the follicular funnel. Its lower part is a bulb shape, with the centre filled by the dermic papilla, which includes a nourishing vessel. This bulb called the Pilar bulb is the production site of the stem. It is the place of active division of follicle cells. Cells are pushed to the top and form the stem as they are converted to keratin.

The hair stem is made up of at least three different inners. Going from the centre outwards, the three inner rings that form the hair are known as the medulla, the cortex and the cuticle.

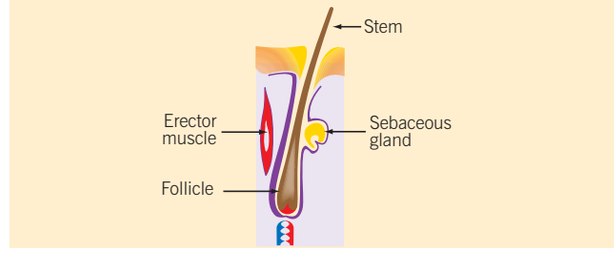

Figure 1. Diagram of hair and hair follicle.

The cortex represents the major part of the hair (90% of hair weight). It is made up of large, very long cells, filled with pigmented keratins cemented together by an intercellular substance. Only the cortex is coloured because of the melanocytes position at the top of papilla. The major role of the cortex is providing mechanical strength and elasticity.

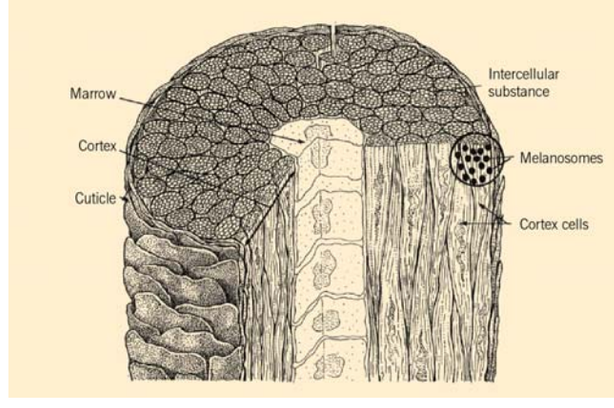

Figure 2. Hair structure.