actifcol™

advanced botanical ingredient

The elixir of life mushroom for a glamorous décolleté

Increased PLOD1 for an enhanced collagen quality

Reduced carbamylation, a protein deterioration process

Improved appearance at neck and décolléte

DESCRIPTION

Shiitake mushroom-based extract, traditionally known as the elixir of life, selected to boost type I collagen synthesis and PLOD1 levels, which contributes to protein quality. Besides, it helps prevent the carbamylation process, responsible for the deterioration of collagen, a key protein in imparting tensile strength. **actifcol**™ *advanced botanical ingredient* may offer a firming effect on mature skin.

APPEARANCE

Liquid containing 1% Lentinus Edodes Extract.

INCI

Water (Aqua), Glycerin, Sodium Citrate, Lentinus Edodes Extract, Potassium Sorbate, Sodium Benzoate, Phytic Acid.

USE LEVEL

2-10%

SOLUBILITY

Water soluble.

SCIENCE

The loss in skin firmness mostly results from a decrease in the synthesis of collagen and an increase in its deterioration. Type I collagen is one of the most abundant proteins in the skin, providing tissue structure and strength. Its proper structural and biological functions are the outcome of a post-translational modification (PTM), a critical step during biosynthesis that involves the hydroxylation of lysine residues by an enzyme encoded by the PLOD gene.

Collagen can also experience the deterioration process of carbamylation, related to a destabilization of the triple helix and an accumulation of derived products associated with a loss of elasticity and sagginess.

actifcol™ *advanced botanical ingredient* has a potential activity in increasing type I collagen and PLOD1 levels, as well as in reducing carbamylation of such protein. On mature skin, an improvement in firmess was measured and a decrease in flaccidity was observed in the face, neck and décolleté.

Lipotec™
Active Ingredients

actifcol™
advanced botanical ingredient

In vitro efficacy

1. TYPE I COLLAGEN INDUCTION

Fibroblasts were treated with 1% **actifcol**™ *advanced botanical ingredient* and the amount of type I collagen was assessed by an ELISA.

2. INCREASE IN PLOD1

Fibroblasts were treated with 2% or 3% **actifcol**™ *advanced botanical ingredient* and an ELISA was used to measure the levels of PLOD1.

3. DECREASE IN CARBAMYLATION

Type I collagen was incubated with potassium cyanate, to simulate the carbamylation process, and with 2% **actifcol**™ *advanced botanical ingredient*. Carbamylation was evaluated with a protein carbamylation ELISA kit.

36.6% increase in key dermal protein levels

PLOD1 boost, suggesting an improved collagen quality

Reduction in the collagen deterioration
Carbamylation levels decreased by 75.9% versus control.

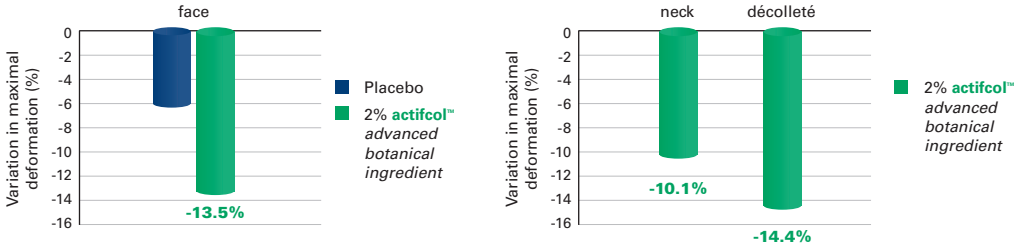
In vivo efficacy

ENHANCEMENT IN FIRMNESS

19 women (41-55 years old) with skin flaccidity applied a cream with 2% **actifcol**™ *advanced botanical ingredient* on the neck, décolleté and half face and a placebo cream on the other half, twice a day for 56 days.

• Maximal deformation

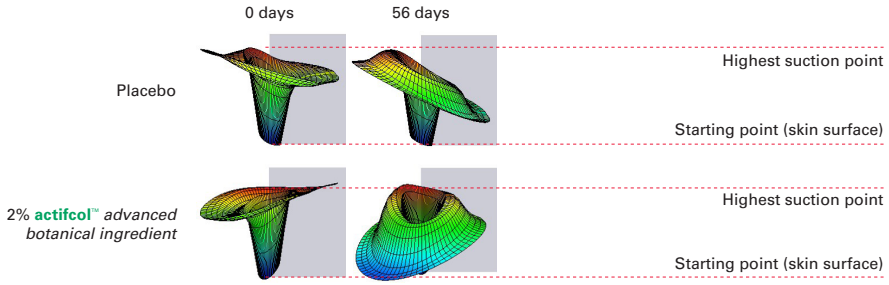
The parameter was evaluated with a cutometer, which allows the quantification of firmness, being a decrease in maximal deformation (R0) associated with a firmer skin.



Statistically significant improvement in face, neck and décolleté firmness

• Anisotropy

The linearity of the skin (anisotropy), which determines the displacement and returning profile, was assessed by a device that combines a mechanical force and imaging. This provides a 3D view of the suction and return of the skin to the starting point.



More isotropic skin with an even return to the starting point

• Visible tightness

The efficacy against flaccidity was appraised through macro photographs of the volunteers.

Demonstrated firmer and smoother complexion

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Lubrizol

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