

Active Beauty
Soothex[®]
Sustainable skin soother
in extreme conditions

Crafted by green technology



Focus on the product

Skin and scalp irritation causes

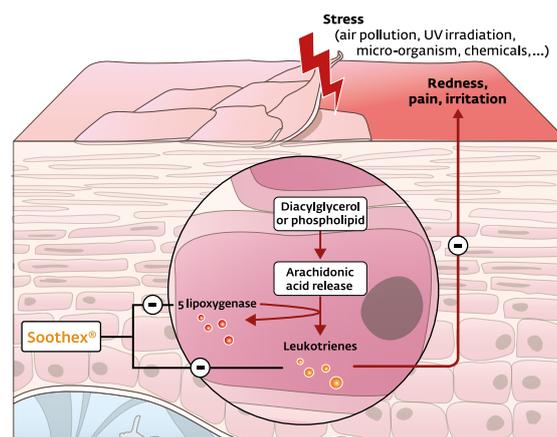
It is a known fact that irritation, pain and redness are due to external or internal factors. Those external stress can be brought by the environment such as UV radiations, pollution, but also from the use of some specific cosmetic products, containing chemicals which can sensitise skin and scalp (perm treatment, depilatory creams, peeling solutions, shampoos, etc.).¹

Inflammation pathway

When the skin is under external stress, a biological pro-inflammatory response is activated. A key enzyme, the 5-lipoxygenase, will be overexpressed².

The 5-lipoxygenase is the major source of potent pro-inflammatory leukotrienes issued from the metabolism of arachidonic acid. Leukotrienes are an important family of eicosanoid lipid mediators that play central role in immune responses and tissue homeostasis³.

The conversion of arachidonic acid into leukotrienes by the 5-lipoxygenase, will lead to vasodilatation, vaso-permeability, chemotaxis provoking redness, pain, and immune system response.



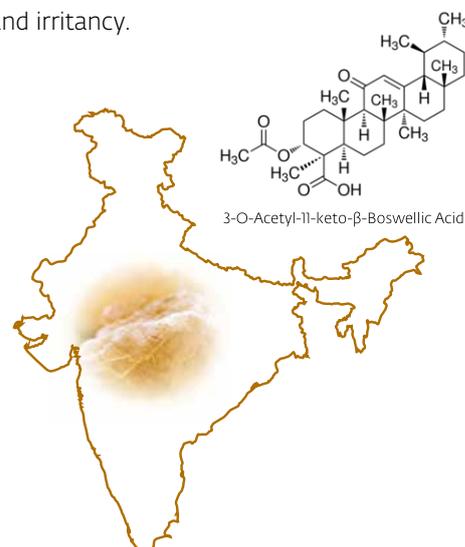
Soothex®: fight redness, itching and irritancy

Soothex® is a solution of Boswellia Serrata Gum into Dipropylene Glycol (or Isostearyl Alcohol for Soothex® ISA). It acts on the 5-lipoxygenase to inhibit the proinflammatory pathway and avoid redness, itching and irritancy.

The Boswellia Gum is well known in Ayurvedic tradition for its very potent soothing properties. Indeed, the gum is rich in six different boswellic acids (>60%). Boswellic acids are pentacyclic-triterpenes known to inhibit the activity of the enzyme 5-lipoxygenase through a non-redox reaction.

Soothex® is a solution of that gum with a strong capacity to inhibit the 5-lipoxygenase and so to reduce the leukotriene pro-inflammation pathway.

Boswellia Serrata trees are growing wild in the hills in Madhya Pradesh in India. Boswellia Serrata gum is harvested seasonally by the local inhabitants from trees without destroying them. The trees are productive for gum resin for over 50 years and it has no impact on tree health and reproduction abilities. A wound is done in the bark of the tree and the gum is harvested when dry.



¹Source: CNRS.fr-aggressionssurlapeau.

²Source: Arthritis Rheum. 2001 Aug;44(8):1865-75.

³Source: Science. 2001 Nov 30; 294(5548):1871-5.

Biological activity

Inhibition of 5-lipoxygenase activity (*in tubo* test)

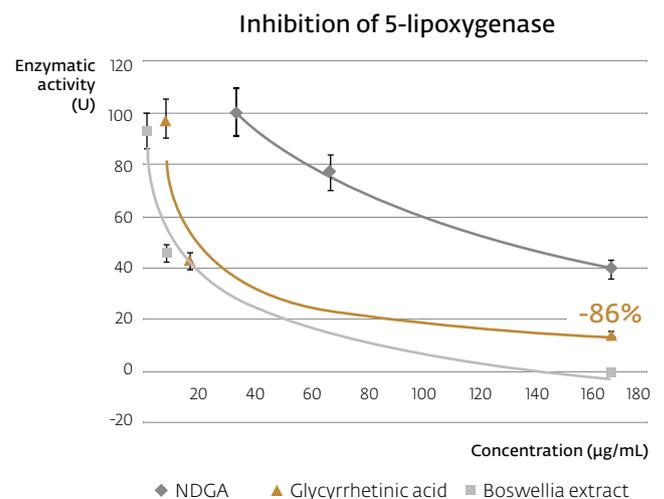
The *in vitro* efficacy of Soothex® has been tested for its inhibitory action on 5-lipoxygenase. Soothex® is a solution of 10% Boswellia Gum into Dipropylene Glycol (or Isostearyl Alcohol for Soothex® ISA). The content of Boswellic acids inside the gum will be able to block the pathway of Arachidonic acid involved in inflammation.

Arachidonic acid is produced in skin exposed to a stress. The 5-lipoxygenase will convert the arachidonic acid into leukotrienes which will cause redness, pain, and irritation on the skin.

The inhibition properties of Boswellia extract (active component in Soothex®) was evaluated by spectrophotometry *in tubo*. 100 units of 5-lipoxygenase were preincubated with either NDGA, Glycyrrhetic acid (references) or Boswellia extract at different concentrations.

Then the enzyme substrate (arachidonate) was added to the tube and the enzymatic activity (conversion of arachidonate into leukotrienes) was measured between 3 and 10 minutes at 234nm.

Results: Boswellia extract contained in Soothex® strongly inhibits the activity of the 5-lipoxygenase (IC50 = 55µg·mL⁻¹), and even better than Nordihydroguaiaretic acid (NDGA reference) and almost identically to Glycyrrhetic acid. At 165.7µg/mL⁻¹, Boswellia Serrata (0.165% Soothex® equivalent) inhibits 85.8% of 5-lipoxygenase activity.



Efficacy

High soothing performance under high / low pH conditions

1. Reduction of stinging under AHA / acidic pH (clinical evaluation)

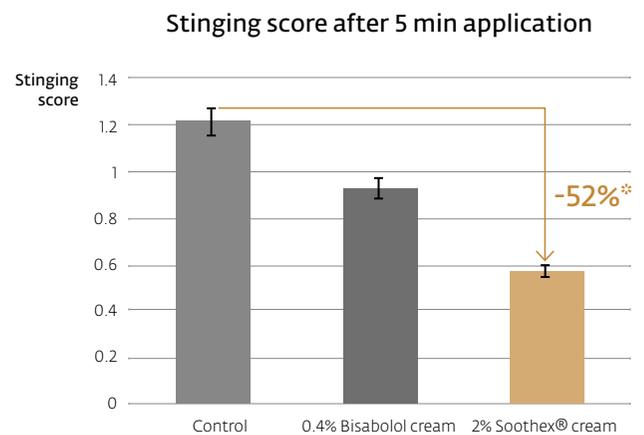
The stinging reduction properties were evaluated on fourteen volunteers with a sensitive skin. The panelists applied all product in a random order on the nasogenial furrows:

- ▶ A placebo base,
- ▶ An emulsion base + 7% lactic acid (AHA),
- ▶ An emulsion base + 7% AHA + 2% Soothex®,
- ▶ An emulsion base + 7% AHA + 0.4% bisabolol.

The level of stinging was scored from 0 (no stinging) to 4 (extreme stinging) after 5 minutes of application. The results deduce the stinging sensation brought by placebo.

Results: Soothex® at 2% **reduces significantly**, compare to control, **the stinging sensation caused by AHA** in the formulation **by -51.7%**, and even better than bisabolol. Indeed, Bisabolol is not significant compare to control.

*p-value < 0.05 Student's t-test



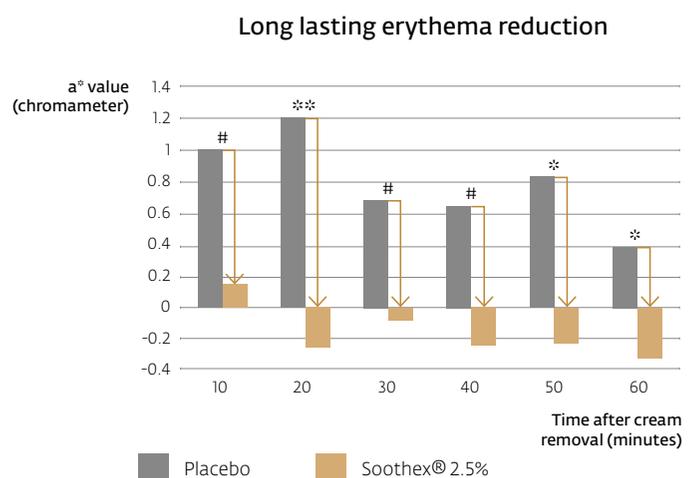
2.Reduction of erythema caused by depilatory cream / basic pH (clinical evaluation)

The efficiency of Soothex® at 2.5% in depilatory cream (pH 12.0) was evaluated in a double-blind test versus a placebo depilatory cream. 19 volunteers aged between 18 and 50 years old applied randomly in one inner forearm a placebo depilatory cream (pH 12.0) containing potassium thioglycolate, potassium hydroxyde and on the other arm the same depilatory cream with 2.5% Soothex®. The standing time lasted for 20 minutes.

Then the cream was removed and skin redness was measured every 10 minutes for one hour using the Minolta Chroma Meter by recording the a* value (red to green color changes).

Results: Soothex® at 2.5% in a depilatory formula **brings an immediate soothing effect**. The reduction of the erythema is significant **10 minutes after cream removal** and it is **kept up to 1 hour after cream removal**. The depilatory cream alone generates an important erythema, still visible after 1 hour.

p-value < 0.1 Student's t-test * p-value < 0.05 Student's t-test
** p-value < 0.01 Student's t-test



Efficacy

High soothing performance against detergents

The efficiency of Soothex® at 2.5% was evaluated in a double blind test to prove the reduction of the irritation caused by a detergent in a formula. 29 volunteers applied, under an occlusive patch, 0.2mL of a gel formula containing Sodium Lauryl Sulfate (SLS) at 0.3% on one inner arm and the same formula but with 2.5% Soothex® on the other arm.

Occlusive patches were applied on days 1, 3 and 5 on the area where the products have been applied. After 24 hours, the patches were removed (day 2) for 24 hours. Then the patches were re-applied at the same place after evaluation of erythema (day 3). Erythema was evaluated by a dermatologist on day 3, day 5 and day 8.

Results: Soothex® at 2.5% is able to reduce significantly the impact of an irritant ingredient into the formulation such as SLS in occlusive patch test **after 8 days by 14.3%** compare to placebo.

p-value < 0.1 ANOVA

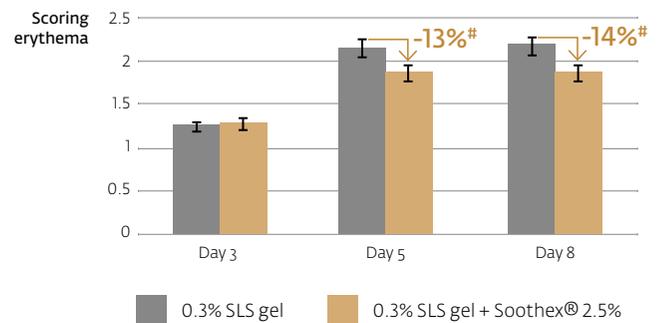
Itchy scalp soothing (self assessment)

44 male volunteers with itchy scalps applied for 28 days 3 times a week either a shampoo containing Soothex® at 2.5% or a placebo shampoo. The panel was split into two equal proportions. The scalp itching sensation was self evaluated by each panelist through a self assessment questionnaire.

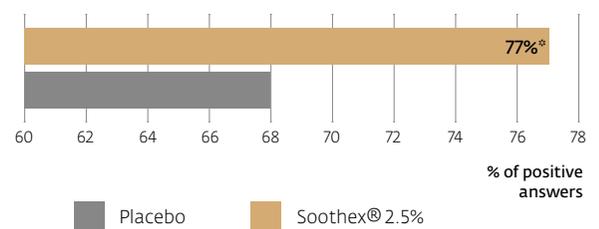
Results: Soothex®'s efficacy on reducing itching is significantly perceived by panelists compared to a placebo formula.

* p-value < 0.05 Khi² test

Erythema evolution in SLS gel patch tests



Would you say that this shampoo helps to reduce your scalp itching?



Summary



Technical information

INCI:	(Soothex®) Dipropylene Glycol (and) Boswellia Serrata Gum (Soothex® ISA) Isostearyl Alcohol (and) Boswellia Serrata Gum*
Origin:	Natural extract
Preservation:	Preservative free
Appearance:	Clear, yellow to brown liquid
Solubility:	Oil soluble (Water soluble with surfactants)
Dosage:	0.5-2.5%
Processing:	Stable at a wide range of pH (pH 2-13). Can be heated up to 120°C for 1 hour the product will remain stable. Product is stable in presence of Hydrogen Peroxide Neutraliser and Thyoglycolates.

Claims

Claims:	Natural skin soothing, skin redness reduction, skin sensitivity reduction, scalp itching reduction, natural soother for extreme formula.
Applications:	Soothing cream, Face wash, Shower gel, Itching scalp shampoo, Depilatory cream, peeling formula, perm treatments, skin and scalp formula for sensitive skins.

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