EtHAIReal Peppermint

Rebalances for lighter hair

NAOLYS

NATURE EXPANDED


HAIR

EtHAIReal Peppermint

Rebalances for lighter hair

A STORY

The peppermint | *Mentha x piperita, Lamiaceae*

Peppermint, a hybrid with a powerful aroma

This fragrant herbaceous perennial, whose geographic origins remain unclear, results from crossing water mint (aquatica) with spearmint (spicata). It spreads rapidly by stolons. Widely used for its scent since antiquity, it is now grown in several parts of the world for its essential oil, obtained from the leaves, which is very rich in menthol. Peppermint is used in many food products (herbal teas, confectionery, spirits) and also in pharmaceutical preparations (as a remedy for coughs and colds, in antiseptic creams, local analgesics, etc.).

Key points

An active plant cell
Developed to deliver the highest amount of original active molecules.

A high tech natural ingredient
Created to preserve and improve the identity and the benefits of a natural product.

Balancing action
Regulates the mechanisms at the origin of oily hair.

Because oily hair comes from a functional imbalance in the hair bulb, this needs to be corrected through targeted action on the production of oily substances, and also on the general protection of the hair. For lighter, shining, radiant hair.

HAIR

PRODUCT BENEFITS

Overall regulation

Regulating
Reduces excessive production of oily substances (sebum and lipids) by the hair bulbs and scalp.

Antioxidant
Decreases general cell oxidation, reduces the formation of free radicals in hair bulb and scalp cells.

Soothing
Calming, reduces irritation by increasing the tolerance threshold of the hair bulbs and scalp.

Lightening
Makes hair lighter, for longer.

To be used in hair products (shampoos, masks, serums) intended to rebalance oily hair or hair that easily becomes oily.

Related products: HEALTHY SHINE LILAC | PURE LIGHT CHINESE PEONY | FULL DETOX EUCALYTUS

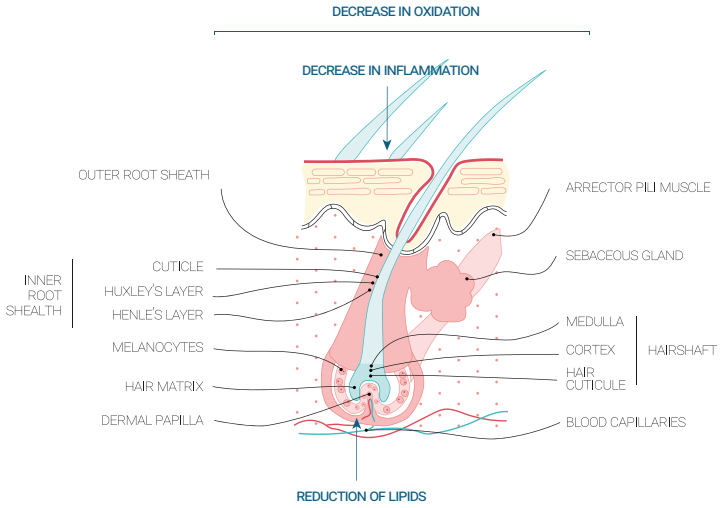
NAOLYS

HOW IT WORKS

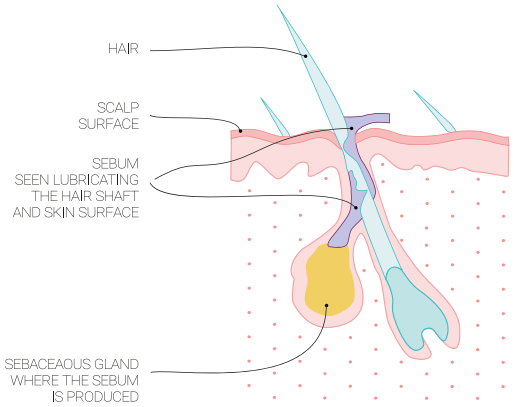
EtHAIReal Peppermint: repairs initial imbalances

Oily hair or hair that easily becomes oily

A very unfortunate condition, oily hair is heavy, flat, dull, lacks volume and looks greasy from the roots to the ends.
All of these characteristics have the same origin: hyperseborrhea, or overproduction of sebum, a complex of lipid substances that are synthesized in the sebaceous glands associated with the hair. Sebum attaches itself to hair, especially around the roots, which gives them this greasy, heavy, even dirty appearance.
Furthermore, men's scalps and hair are usually oilier than women's, because men's scalp contains more hair follicles, and thus more sebaceous glands, producing more sebum.
While this sebum, or lipid film, protects against dryness, overproduction, which is linked to the hormonal function of the sebaceous glands, is complicated to regulate. However, it is possible to act on several key mechanisms, beyond directly on the production of sebum, and to reduce the greasy appearance of oily hair.



ACTIONS OF ETHAIREAL PEPPERMINT
THE HAIR - FROM THE HAIR BULB TO THE HAIR SHAFT



SEBUM AND HAIR

EtHAIReal Peppermint: targeting the mechanisms at the origin of oily hair

EtHAIReal Peppermint not only acts on the hair bulb at the origin of the generation of sebum, but also on the scalp with a more general effect.

Reduces lipid (sebum) production

Focusing on the mechanisms at the origin of hyperseborrhea, EtHAIReal Peppermint operates at the heart of the sebaceous glands associated with hair by reducing the activity of the enzyme involved in the production of sebum-producing cells, 5 alpha-reductase. As the sebum or lipid film on the scalp breaks down, it is also essential to regulate this process, separating its most complex components into free fatty acids that are easier to remove.

EtHAIReal Peppermint regulates overproduction of lipids in the hair bulb.

Protects and prepares the hair for daily stress

Unbalanced and therefore more fragile, oily hair needs to be protected and soothed.
Through an initial protection from attacks from free radicals that can accentuate their intrinsic imbalance, by reducing this production in the scalp and the heart of the hair cells.
Through a decrease in the synthesis of inflammation mediators in both regions, this synthesis being driven by an imbalance in the skin barrier.

EtHAIReal Peppermint reduces general oxidation and irritation.

Through its effect on all the characteristics of not only the hair but also the scalp, EtHAIReal Peppermint restores lightness and shine to oily hair.

CLINICAL TEST RESULTS

Overall improvement in the appearance of the hair and scalp in 28 days

Sebum level

Oily appearance

Shine

Irritation of the scalp

At a concentration of 0.5%

IN VITRO TEST RESULTS

General rebalancing

Regulating effect on the synthesis of lipids
Due to a **26%** decrease in 5 alpha-reductase
Due to a **23%** increase in free fatty acids

Antioxidant effect
Due to a decrease in the creation of total reactive oxygen species (ROS) induced by UVB and UVA
Due to a **24%** decrease in lipid peroxidation induced by UVB in the scalp

Soothing effect
Due to a decrease in the release of inflammation mediators, IL1-alpha **(22%)**, IL-6 **(20%)** and PGE2 **(19%)**
And IL1-alpha **(24%)**, IL-6 **(22%)**, PGE2 **(18%)** in the scalp

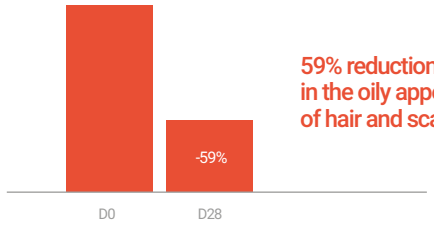
At a concentration of 0.5%

Clinical study

Hair appears less dull and oily, reduced scalp irritation in 4 weeks

Reduction of oily appearance

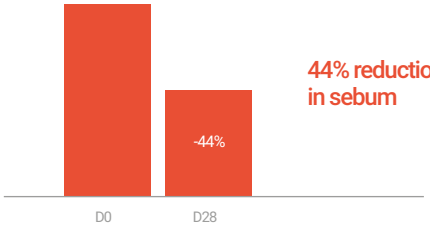
Oily aspect of the hair and scalp (self-assessment) in 28 days



59% reduction in the oily appearance of hair and scalp

Decrease of sebum

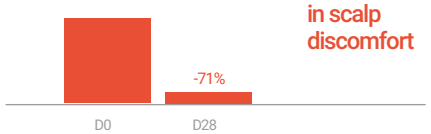
Level of sebum in 28 days



44% reduction in sebum

Soothing effect

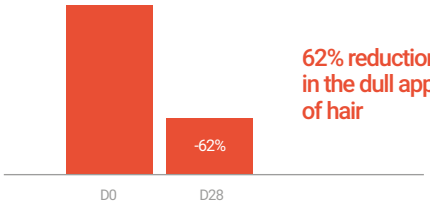
Discomfort sensations on the scalp (self-assessment) in 28 days



71% decrease in scalp discomfort

Increase of hair's shininess

Dull aspect of the hair (self-assessment) in 28 days



62% reduction in the dull appearance of hair

Study conditions:

→ Tests were carried out for 28 days on a sample of 22 people (9 women and 13 men) aged 19 to 64 years-old with oily hair
→ Application three times a week on wet hair and scalp after shampoo, leaving on two to three minutes and then rinsing
→ Lipid (sebum) measurement using a Sebumeter and measurement of three other parameters by self-scoring
→ Emulsion containing 0.5% EtHAIReal Peppermint (liquid form)

Technical information on the formulation of EtHAIReal Peppermint

INCI name of cells	form	aspect	concentration	dispersible
mentha piperita (Peppermint) leaf cell extract	cells (20%) in glycerin or sunflower oil (80%)	liquid	starting at 0.5%	in any formulation (emulsion, lotion, fluid)

In vitro testing results

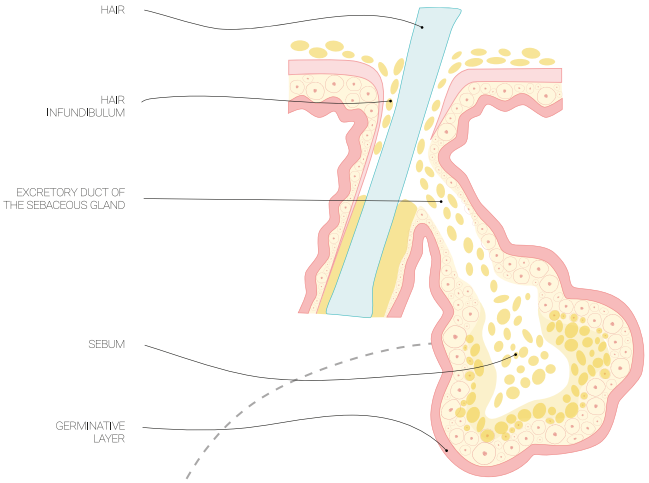
Regulating the quantity of oily substances

Hyperseborrhea is an excessive production of sebum, a substance produced by the sebaceous glands that are connected to the hair follicle by the hair canal.

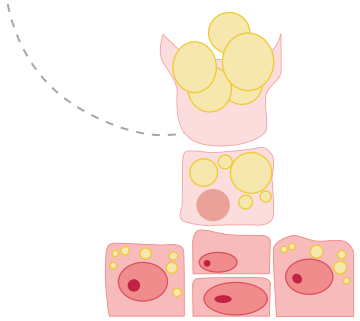
They contain a germinative layer that produces sebocytes, cells that synthesize sebum, which they release at the end of their cycle, having undergone lysis, in the light of the sebaceous gland. They then enter the hair canal and are pushed out towards the scalp surface.

Sebaceous gland activity is controlled by androgen sex hormones of testicular or ovarian origin, in particular testosterone. In the sebocytes, this hormone is converted into dihydrotestosterone (DHT) by the enzyme 5 alpha-reductase. After several more biochemical reactions, sebum is produced (consisting of mainly of triglycerides, fatty acid esters, free fatty acids, waxes, and cholesterol).

Hyperseborrhea is thus due either to a secretion of too much androgen, or elevated activity of the enzyme 5 alpha-reductase activity; it is the latter that Naolys decided to study. Downstream in sebum production process, Naolys also studied the production of free fatty acids that make up the sebum and lipids in the scalp: an increase in free fatty acids corresponds to a breaking down of lipids (triglycerides), which strengthens cohesion between corneocytes.



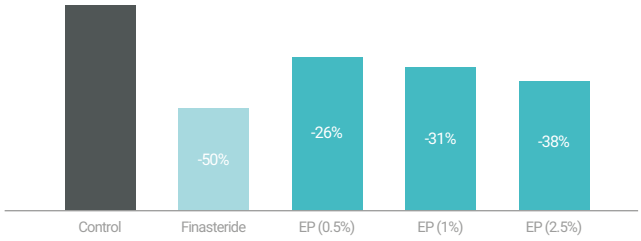
THE SEBACEOUS GLAND



THE PRODUCTION OF SEBUM BY THE SEBOCYTES

Study of 5 alpha-reductase activity

5α-reductase (pmol/min/mg of proteins)

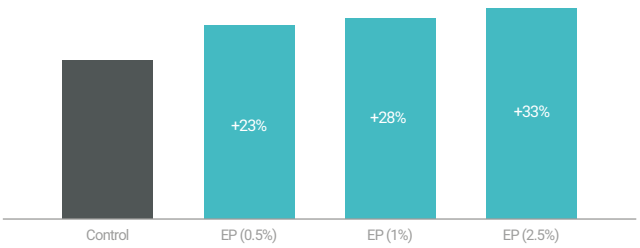


Decrease of the 5 alpha-reductase activity

→ At concentrations of 0.5%, 1% and 2.5%, decrease of the 5 alpha-reductase activity of 26%, 31% and 38% respectively.

Study of free fatty acids

Incorporation of [^{14}C] acetic acid



Increase of free fatty acids

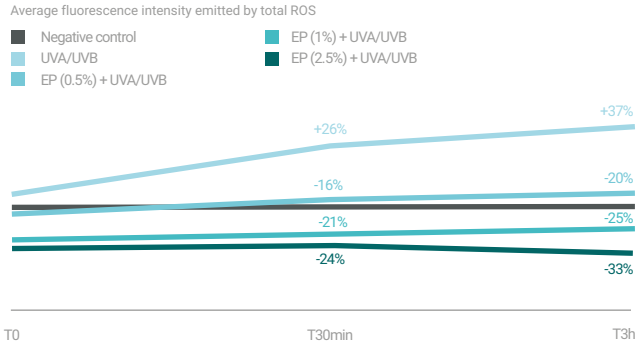
→ At concentrations of 0.5%, 1%, and 2.5%, increase of free fatty acids respectively by 23%, 28% and 33%.

Protects and soothes

Reduces the creation of free radicals in the hair bulb and scalp

Because oxidation (due to environmental factors such as UV and pollution, and internal factors such as metabolism and stress) is a broad phenomenon that affects all skin cells, causing damage to their general structure, Naolys studied the effect of EtHAIReal Peppermint on the initial formation of free radicals (ROS) in the hair bulb, and also the formation of malhondialdehyde, a product of lipid peroxidation (oxidation of lipid membranes) in the scalp.

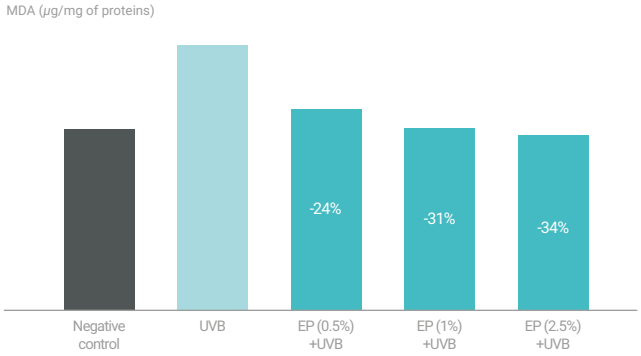
Study of ROS
At the level of the hair bulb



Decrease of total ROS

→ At concentrations of 0.5%, 1% et 2.5%, decrease of total ROS due to UVA/UVB in beforehand treated keratinocytes respectively of 16%, 21% and 24% after 30 min and of 20%, 25% and 33% after 3 hours.

Study of lipid peroxidation induced by UVB
At the level of the scalp



Decrease of MDA rate

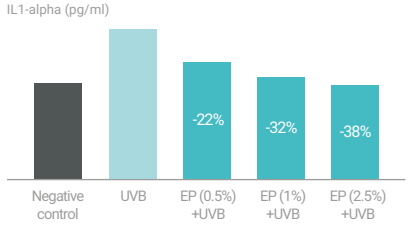
→ At concentrations of 0.5%, 1% and 2.5%, decrease of lipid peroxidation induced by UVB (150mJ/cm²), resulting in a decrease in the release of MDA rate respectively of 24%, 31% and 34%.

Reduces irritation

Inflammation is the tissue's response to stress: it consists of all the defence mechanisms through which any foreign substance is recognized, destroyed or removed. The start of inflammation, and its diffusion from its initial location, involves chemical factors (or inflammation mediators) which are synthesized locally or take the form of inactive precursors. Naolys studied three inflammation mediators synthesized in the hair bulbs and scalp: 2 cytokines (IL1-apha and IL-6) and a prostaglandin (PGE2).

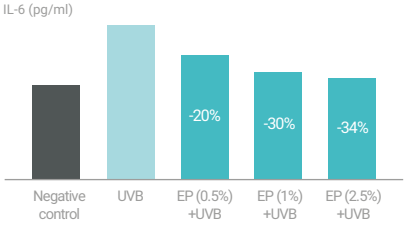
Study of inflammation mediators

At the level of the hair bulb



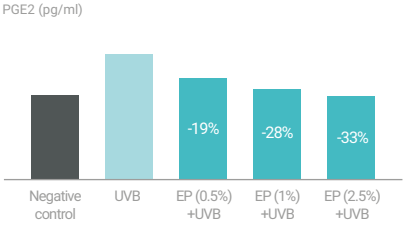
Decrease of IL1-alpha

→ At concentrations of 0.5%, 1% and 2.5%, after UVB induction, IL1-alpha decreases by 22%, 32% and 38% respectively.



Decrease of IL-6

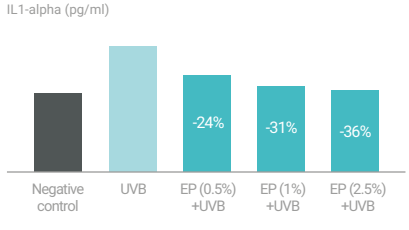
→ At concentrations of 0.5%, 1% and 2.5%, after UVB induction, IL-6 decreases by 20%, 30% and 34% respectively.



Decrease of PGE2

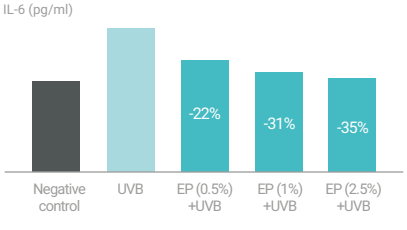
→ At concentrations of 0.5%, 1% and 2.5%, after UVB induction, PGE2 decreases by 19%, 28% and 33% respectively.

At the level of the scalp



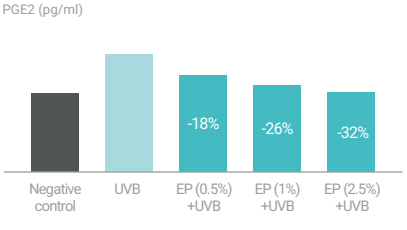
Decrease of IL1-alpha

→ At concentrations of 0.5%, 1% and 2.5%, after UVB induction, IL1-alpha decreases by 24%, 31% and 36% respectively.



Decrease of IL-6

→ At concentrations of 0.5%, 1% and 2.5%, after UVB induction, IL-6 decreases by 22%, 31% and 35% respectively.



Decrease of PGE2

→ At concentrations of 0.5%, 1% and 2.5%, after UVB induction, PGE2 decreases by 18%, 26% and 32% respectively.