

Care
Creations™

Pilisoft™

Hair growth reducer

Beauty Creations
The Passion for Beauty

 **BASF**
The Chemical Company

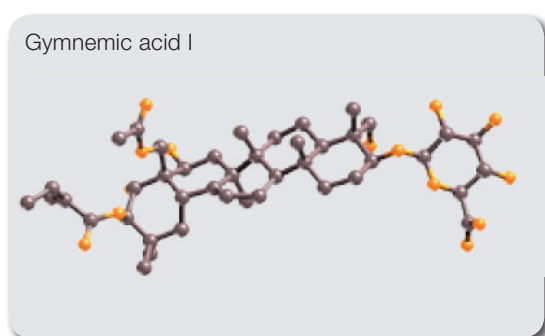
Pilisoft™

The development of the post depilatory and after shave market segment also follows, and is driven by, the general trend for more premium products, with new and stronger added value claims.

Beyond soothing and calming, this kind of products has to provide additional benefits, especially the possibility to reduce the frequency of hair removal treatments. By reducing hair growth Pilisoft™ from Beauty Creations offers the solution to maintain the softness of just depilated skin for a longer time.

Pilisoft™ is a specific active that prolongs and enhances the effects of hair removal treatments by combining two simultaneous effects. Pilisoft™ reduces hair vitality and visibly slows down hair growth, resulting in increased ease of depilation and shaving, the frequency of which may consequently be reduced. This effect of prolonged softness makes it especially suitable for the most sensitive skin, which does not tolerate repeated depilation or shaving very well.

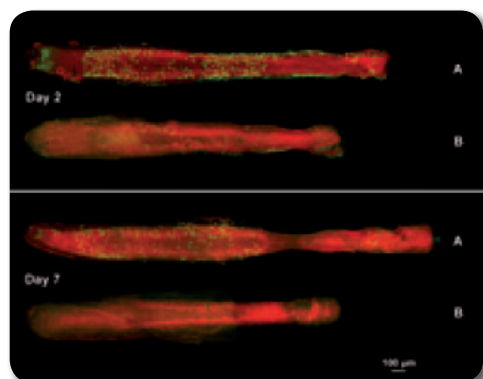
Pilisoft™, with its gentle care, was specifically developed for daily use. Thus it can be used in a wide range of body care applications for women as well as in men's after shave balms and lotions.



Pilisoft™ hair growth inhibitor:

The rate at which hair grows and the thickness of the hair are mainly dependant on the activity of the hair follicles. When this activity is inhibited the hair develops less quickly. The resulting slower and finer hair growth allows for easier depilation and shaving. Even though the intracellular pathways of hair growth inhibition are not entirely understood yet, different studies carried out to date have demonstrated the involvement of cyclic adenosine monophosphate (cAMP) and phosphodiesterase.

To develop Pilisoft™, Beauty Creations based their research on scientific knowledge that demonstrated the inhibitory effect of gymnemic acid I on phosphodiesterase activity [1]. This inhibition leads to an increase of the level of cAMP that results in hair-growth inhibition.



Hair growth inhibition after 2 and 7 days of hair follicle culture. Ki67 staining. A: control - B: *Gymnema Sylvestre* Leaf Extract at 0.025%

Pilisoft™, botanical hair-growth inhibitor, offers the most sensitive skin a longer lasting smoothness between two hair removal treatments.

Definition / Composition

Gymnema sylvestre is a plant native to central and southern India (the Deccan plateau). Its main bioactive components are triterpenoid saponins belonging to the oleanane class, also known as gymnemic acids.

Gymnema sylvestre has been used in traditional Ayurvedic medicine to treat diabetes for over 2500 years. It is also used to curb sugar cravings, as it reduces the taste of sugar when it is placed in the mouth. This effect is thought to be due to the fact that gymnemic acid molecules fill the receptor locations on the taste buds, preventing activation by sugar molecules present in the food.

Pilisoft™ is a botanical extract, with identified tracer gymnemic acids, from the leaves of *Gymnema sylvestre*.

Skin benefits

- Prolongs the benefits of hair removal treatments.
- Reduction of hair-growth.
- For sensitive skin: allows decreasing the frequency of depilation or shaving.

Cosmetics use

- After depilatory care.
- Men care: after shave gels or balms.
- Specific body or face care.
- Deodorants (see formulation requirements).

Dosage / Solubility / Mode of incorporation

1. Dose of use: 0.5 to 1%.

2. Solubility: soluble in water, insoluble in fats and oils.

3. Mode of incorporation: Pilisoft™ must be introduced below 60°C during the finishing process or at room temperature for cold processing.

Optimal pH: 4-7.

Analytical characteristics

1. Aspect: opaque amber-colored liquid with a characteristic odor.

2. Specifications: upon request.

3. Preservatives: free.

Tolerance

Good.

Efficacy

Efficacy tests hereafter.

Storage

In its original packaging, at 15 - 25°C.

INCI name

Pilisoft™ LS 9760 Water (and) Pentylene glycol (and) *Gymnema Sylvestre* Leaf Extract

Efficacy tests

The efficacy of Pilisoft™ was checked *in vitro*:

- anti-proliferative effect on human keratinocytes in culture,
- anti-hair growth effect on hair follicles in culture illustrated by immunohistochemistry.

Finally, this anti-hair growth effect was assessed *in vivo* on human volunteers.

Anti-proliferative effect (*in vitro* test on human keratinocytes)

Aim

To evaluate the capacity of Pilisoft™ to inhibit the hair growth through reducing the proliferation of human keratinocytes. The keratinocyte proliferation was induced by addition of epidermal growth factor (EGF) and the effect of Pilisoft™ was measured in this model comparatively to its excipient*.

Protocol

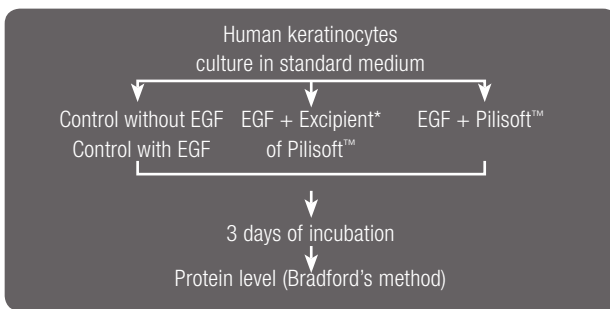


Fig. 1 - Protocol of evaluation of the anti-proliferative effect on human keratinocytes.

Results

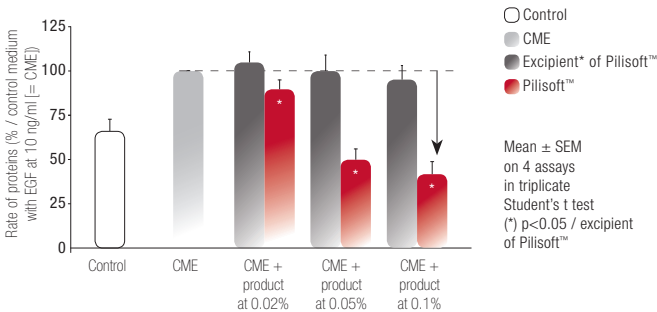


Fig. 6 - Anti-proliferative effect on human keratinocytes.

Conclusion

Pilisoft™ has significantly lowered, in a dose-dependent way, the proliferation of human keratinocytes stimulated by EGF comparatively to its excipient at the same concentrations. No toxicity on MRC5 fibroblasts was observed for the active matter of Pilisoft™ in the dose range tested for anti-proliferative activity (data not shown).

* Excipient of Pilisoft™: components of Pilisoft™ other than *Gymnema Sylvestre* Leaf Extract.

Anti-hair growth effect (*in vitro* test on hair follicles)

Aim

To evaluate the capacity of Piliisoft™ to inhibit the hair growth *in vitro* on the Philpott's model [2] of hair follicles in culture.

Protocol

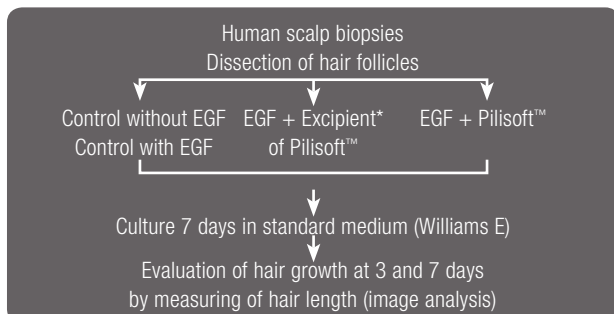


Fig. 3 - Protocol of evaluation of the anti-hair follicle growth.

Results

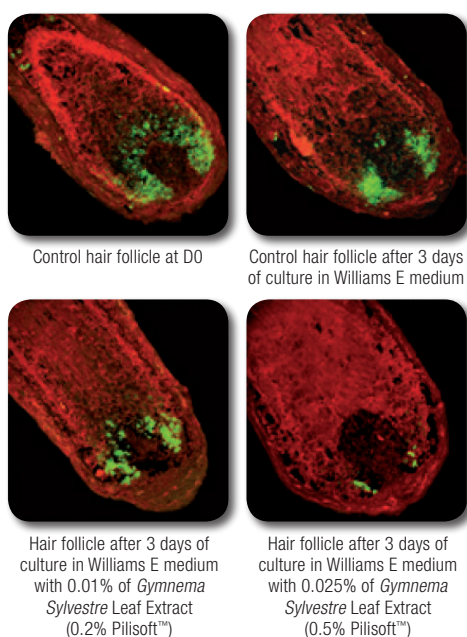


Fig. 4 - Illustration of anti-mitotic activity of *Gymnema Sylvestre* Leaf Extract on hair follicles sections (Ki67 staining).

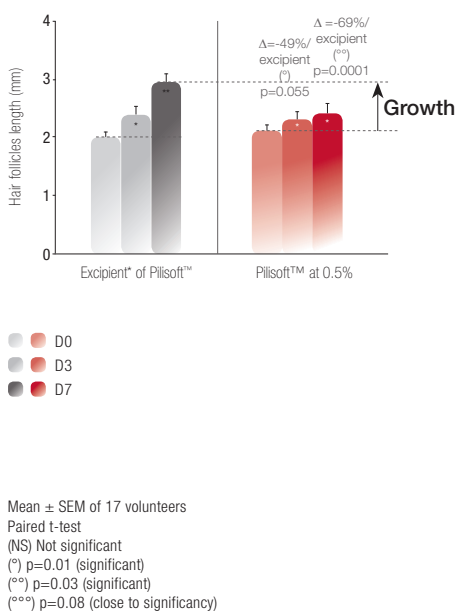


Fig. 5 - Anti-hair follicle growth.

Conclusion

Piliisoft™ has significantly inhibited the hair growth of hair follicles in culture in comparison to its excipient.

* Excipient of Piliisoft™: components of Piliisoft™ other than *Gymnema Sylvestre* Leaf Extract.

Anti-hair growth effect (clinical test)

Aim

To evaluate, *in vivo*, the anti-hair growth effect of a gel with 1% Piliisoft™, comparatively to placebo gel, on human volunteers, after daily application during 28 days of treatment.

Protocol

Study carried out in simple blind on 21 Caucasian skin type female volunteers, 18 to 45 years old, with brown to dark hair and used to shave their legs.

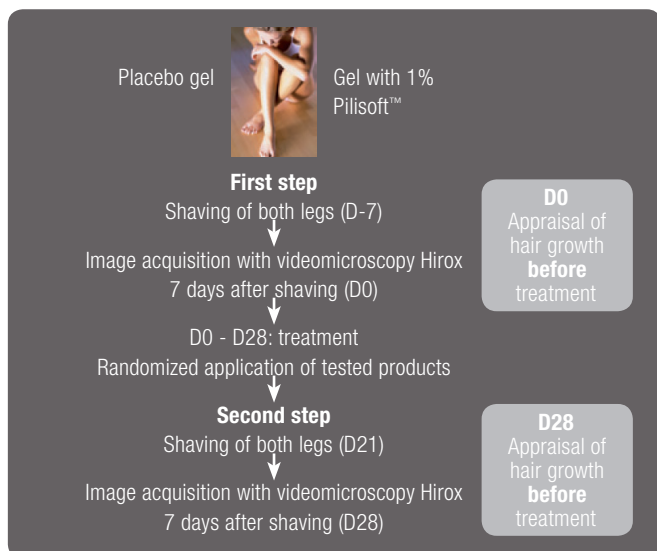


Fig. 6 - Protocol of evaluation of the anti-hair growth.

Method

Image acquisitions by videomicroscopy Hirox were realized 7 days after the shaving at D0 (before treatment), and at D28 (after 28 days of treatment). On each leg, three images covering a total area of 15 cm² were analyzed with specific software. The evaluated parameter was the speed of hair growth (mm/day).

Results



Fig. 7 - Illustration of anti-hair growth effect of a gel with 1% Piliisoft™.

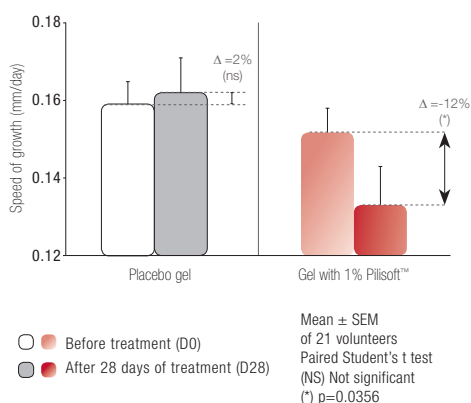


Fig. 8 - Anti-hair growth effect.

Conclusion

Piliisoft™ at 1% in a gel has a significant anti-hair growth activity. After 28 days of treatment, the speed of growth was reduced by 12 % for the gel containing 1% Piliisoft™, whereas the placebo gel did not modify the hair growth. The results demonstrated a significant anti-hair growth effect of Piliisoft™ at 1% in a gel versus placebo gel.



General conclusion

This series of tests have demonstrated the effect of Pilisoft™ to decrease the proliferation of keratinocytes as well as to reduce the mitotic activity of hair follicles. This specific efficacy can be attributed to the main active components of Pilisoft™, gymnemic acids.

The anti-hair growth effect was subsequently substantiated by a clinical study, confirming that Pilisoft™ is an effective solution to prolong and enhance the benefits of hair removal treatments.

Bibliography

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- [2] PHILPOTT MP, GREEN MR, KEALEY T: Human hair growth *in vitro*. J Cell Sci, 97, 463-471, 1990

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