

## ACMELLA OLERACEA EXTRACT EVALUATED



When today's consumers decide to go to work on their appearance, they are seeking rapid and radical results. They are willing to go to more and more extremes in order to attain the appearance they desire and they do not want to wait for the results.

If we take the example of cosmetic surgery, once reserved for Hollywood stars, it has now become democratized, in particular in certain socio-economic groups and countries, with the US and Brazil leading the market. Indeed, in many areas of South America, it is normal practice for women to go under the surgeon's knife to touch up all parts of the body and face.

Although cosmetic surgery is gaining ground, many consumers remain reserved and still think twice before going so far. One of the reasons they do so is the appearance of less invasive techniques such as Botox and hyaluronic acid injections that have gained great popularity over the last few years. However, the majority of people are still concerned by the fact that such treatments involve subcutaneous injections and cannot be rapidly undone if the results are not right. Drooping eyelids, a 'frozen' facial expression, other possible, although rare side effects, can take some time to wear off.

Cosmetic products and treatments can offer a safe alternative to such techniques. Yet the consumer wants visible and fast results – not after three months of twice daily application of a cream but after a week or even a day of treatment. This was the aim of Gattefossé in its research for a new anti-ageing active: something safe, quick-acting and efficient with visible results.

This has been achieved by bringing to cosmetics the powerful anti-ageing properties of *Acmella oleracea*, a plant that grows in the tropical region of the Indian Ocean.

### **Mafane plant**

*Acmella oleracea*, or para cress plant, is known by a number of names that differ locally: the plant is notably called mafane in the Indian Ocean. This small plant grows all year round and can be found in the majority of intertropical zones, including Africa, South America, and Asia. Gattefossé gathers this plant from the island of La Reunion.

In the Indian Ocean, *Acmella oleracea* is used in food as a condiment where it is often added to the local dishes. mafane plant is also widely used in traditional medicine, for many ailments including toothache, inflammatory conditions and even influenza.<sup>1,2</sup> Mafane has no particular odour, but when eaten it has an interesting flavour that leaves a numb feeling in the mouth.

The investigation of the extraordinary potential of this small plant for the personal care market was a challenge. The clustering of bibliographic and screening data led our researchers to focus more precisely on a family of isobutylamides. Among the different compounds, the most closely studied is an amide called spilanthal. The sensorial feeling of mafane is due principally to this amide, which reaches its highest concentration in the flowers.<sup>3</sup>

To enrich the extract in spilanthal and also avoid the need to add preservative a specific ethanolic extraction process has been used. The efficacy of the extract has been investigated in vitro and in vivo and been shown to have a powerful effect on fine lines or "expression wrinkles".

### **Fine lines and ageing**

Because we smile, frown, laugh and talk, the skin of our faces is subjected daily to thousands of involuntary microcontractions that result in the formation of fine lines. These lines eventually lead to deeper, more visible wrinkles. It is precisely via a myorelaxing mechanism that slows down these microcontractions that *Acmella oleracea* extract proves its efficacy.

## **Efficacy assessment**

Two types of substantiation test, in vitro and in vivo, prove the efficacy of the *Acmella oleracea* extract.

Firstly, the myorelaxing activity of the extract was tested on a model reproducing muscle contractions. This model is produced by the co-culture of motor neurones with human muscle cells forming striated muscle fibres which, once innervated, spontaneously contract. The muscle contractions were counted in the presence and absence of *Acmella oleracea* extract. As such, it was demonstrated that just 0.6% of the extract is enough to obtain complete myorelaxation. The blocking process is fully dependent on the concentration of the tested extract.

Once complete myorelaxation is obtained, the culture medium is washed to remove the *Acmella oleracea* extract. The results, which show the progressive return of the muscle contractions, prove the reversibility of the effect. The cells are in no way damaged by the extract. The study was then repeated, this time by applying a cream containing *Acmella oleracea* extract on top of a reconstructed skin (consisting of dermis and epidermis), so as to evaluate its capacity to maintain efficacy after topical application.

The results confirm the stability of the active, which is just as effective once formulated. Its activity is confirmed as dose-dependent and reversible. It is interesting to observe that after 24 hours, some residual efficacy remains when a concentration of 3% *Acmella oleracea* extract is used, which could suggest a potentially interesting cumulative effect when used daily.

## **Clinical studies**

Finally, the in vivo smoothing efficacy of *Acmella oleracea* extract has been demonstrated on the fine lines and wrinkles that are present around the eye area, often known as 'crow's feet' wrinkles. These are caused by our many facial expressions.

Skin smoothing was assessed by topometric analysis using the precise technique of fringe projection. Fringe projection is a purely optical method used to assess the roughness of the skin without the need to apply silicone imprints that can influence results due to contact with the skin. Tests were carried on two panels of volunteers with twice-daily application for 28 days:

One panel using a placebo formulation on half of the face and a formulation containing 2% of *Acmella oleracea* extract on the other half.

A second panel using a placebo formulation on half of the face and a formulation containing 5% of *Acmella oleracea* extract on the other.

For the first panel, skin roughness was quantified at several stages during the 28 days. The results show that the extract exerts both a powerful and immediate effect. We found that 75% of volunteers reacted immediately to the smoothing effect of *Acmella oleracea* extract, with a significant visible difference the day after the first application.

The results of the second panel confirmed significant wrinkle reducing activity. With 5% *Acmella oleracea* extract, more than 83% of volunteers benefitted from a reduction in crow's feet wrinkles.

Image analysis, used on the crow's feet area shows that wrinkle depth is reduced, the skin is smoothed and looks younger

In summary, the substantiation tests prove that *Acmella oleracea* extract has a powerful and rapid effect on the signs of ageing. The skin is smoothed with a reduction of both fine lines and deeper wrinkles. The ingredient is safe and shows perfect reversibility.

## **Conclusion**

The anti-ageing properties of an *Acmella oleracea* extract have been demonstrated and can be attributed principally to a mechanism of myorelaxation, which treats the causes of fine line formation. The results on the skin are an immediate smoothing effect with significant reduction of wrinkles. The consumer's desire for visible and fast-acting results can finally be met.

DeClars, an active based on *Acmella oleracea* extract, shows powerful myorelaxing activity with immediate results on wrinkle smoothing, bringing the consumer a reliable option for the ultra rapid achievement of smoother skin.