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GLOBAL

PERSONAL CARE

INGREDIENTS • FORMULATION • MANUFACTURE



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Amaretine®: Bitter-sweet synergy for sensitive skin

Sensitive skin, which typically presents as dryness, redness, itching, and an overall sensory discomfort is a sign of an impaired epidermal skin barrier and ongoing inflammatory processes. It is one of the top skin care concerns with around 60% of consumers affected worldwide, and with many experiencing a negative impact on their quality of life.

With Amaretine®, Lipoid Kosmetik presents the first active ingredient to combine a bitter and a sweet component, in order to synergistically address the symptoms of sensitive skin. The bitter component andrographolide, from the plant 'King of Bitters', specifically binds to bitter receptors in the skin. Bitter receptors are novel and promising targets for skin care as their activation triggers the regeneration of skin barrier lipids.

The sweet component glycyrrhetic acid, derived from licorice roots, is an excellent anti-inflammatory agent. By addressing the physical symptoms such as a weak epidermal barrier, inflammation, and sensory discomfort, Amaretine® ultimately improves the quality of life of affected people.

Andrographolide activates skin barrier lipid production

Bitter receptors have various physiological roles in the body. Interesting from a cosmetic perspective is the fact that these bitter receptors also exist in skin. Here, they trigger the synthesis of skin barrier lipids and induce anti-inflammatory processes.

Andrographolide, an extremely bitter tasting substance isolated from the stems and leaves of *Andrographis paniculata* – also known as 'King of Bitters' – selectively binds and activates



these bitter receptors. Receptor activation leads to enhanced production of skin barrier lipids and reduces inflammatory markers, making andrographolide a potential active substance to target sensitive skin.

Glycyrrhetic acid is a natural anti-inflammatory compound

Inflammation is one of the key characteristics of sensitive skin. To date, the most widely prescribed compounds to combat inflammation are glucocorticoid derivatives, for example

cortisol. They exhibit anti-inflammatory effects by suppressing the expression of pro-inflammatory genes and the production of inflammatory cytokines.

The growing trend of natural cosmetics, however, demands for plant-derived solutions as attractive alternatives for the treatment of sensitive skin. One good example is licorice root (*Glycyrrhiza glabra*), which contains the active compound glycyrrhetic acid (GA), that is well known for its anti-inflammatory action.

The combination of a bitter component, triggering a novel pathway, with a sweet component, well-known to combat inflammation, makes Amaretine® a unique and innovative skin care active and attractive plant-based alternative for the cosmetic treatment of sensitive skin.

Addressing the physical symptoms ultimately improves the quality of life

Amaretine® was shown to be an effective active ingredient for the treatment of sensitive skin using a combination of *in vitro*, *in vivo* and consumer studies. The *in vitro* tests confirmed that the target receptors of Amaretine® are deregulated in sensitive skin, and that Amaretine® restores their expression. In addition, Amaretine® reversed the imbalanced expression of genes associated with skin barrier, lipid synthesis, inflammation, and hypersensitivity to a level resembling normal skin (data not shown).

In a placebo-controlled, double-blind study, Amaretine® was shown to support the regeneration of the epidermal skin barrier and protect skin against irritation quickly and effectively (Figure 1). A consumer study comprised of a clinical assessment and a self-observation part supported these effects with an overall reduction of sensitive skin symptoms by 64% after two weeks. Clinical evaluation correlated well with the consumer experience: volunteers reported less severe skin sensitivity and discomfort as well as a soothing effect and an improvement of life quality.

Taken together, Amaretine® is the first active ingredient combining bitter and sweet components that synergistically address the symptoms of sensitive skin. It is a 100% natural, COSMOS-approved, all-encompassing approach for the treatment of sensitive skin. PC

Lipoid
Kosmetik

Lipoid Kosmetik
Sennweidstrasse 44/46
CH-6312 Steinhausen, Switzerland
Tel: +41 (0) 41 748 33 33
Email: info@lipoid-kosmetik.com
www.lipoid-kosmetik.com

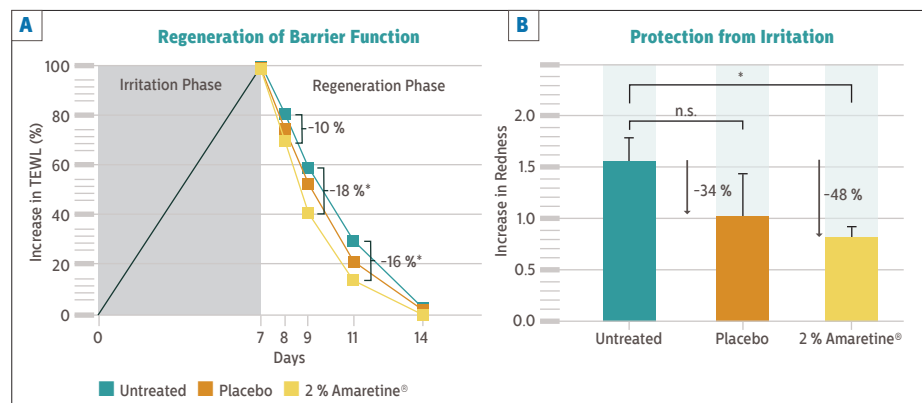


Figure 1: Amaretine® regenerates the skin barrier and protects from irritation. A: 20 volunteers washed their inner arms with SDS for seven days, thereby disrupting the skin barrier. To evaluate the regenerative properties of Amaretine®, the skin was treated with a test cream containing 2% Amaretine® or a placebo, and regeneration of TEWL was monitored for another seven days. B: To evaluate the preventive and protective properties of Amaretine® against irritation, the volunteers applied the test creams one hour before SDS washing. N = 20; Mean + SEM. Student's t-test versus untreated; * = p < 0.05