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GLOBAL

PERSONAL CARE

INGREDIENTS • FORMULATION • MANUFACTURE



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MorinGuard: skin protection with purpose

Moringa oleifera, commonly known as the 'Miracle Tree', is known for its anti-inflammatory action and celebrated for the cosmetic benefits of its seed oil. The oil production supports thousands of Rwandan farming families, creating vital economic opportunities. A by-product of oil extraction, Moringa seed cake, is ingeniously upcycled by Lipoid Kosmetik to create MorinGuard®, a revolutionary cosmetic active ingredient.

MorinGuard® contains moringin, a powerful bioactive compound that delivers exceptional skin care benefits. It combats inflammation by inhibiting the NF- κ B pathway while activating the antioxidative Nrf2 pathway to reduce oxidative stress. This dual-action mechanism minimizes skin damage, fortifies the skin's defense system, and promotes barrier repair, offering a comprehensive solution for inflammation, and skin barrier regeneration. MorinGuard® represents a new era in cosmetic active ingredients going beyond beauty benefits. It's more than an ingredient – it's a statement of care for the skin, the community and the environment.

From upcycled moringa seed cake to cosmetic actives

While moringa oil is the primary commercial product derived from the moringa tree, the seed cake left behind after oil extraction—comprising around 85 % of the biomass—is largely underutilized. Despite being rich in proteins and valuable phytochemicals such as moringin, its potential remains untapped.

To address this, Lipoid Kosmetik has developed a cosmetic active from moringa seed cake, preserving and enhancing the value of its bioactive compounds. Moringin, one of the key components, is known for its strong anti-inflammatory and antioxidant properties. It works by inhibiting the pro-inflammatory



NF- κ B pathway and activating the protective, antioxidative Nrf2 pathway.

Lipoid Kosmetik sources moringa seed cake from a supplier with a sustainable and socially responsible supply chain, linking over 1'500 smallholder farmers in Rwanda to the global cosmetic market. This partnership supports their livelihoods through economic growth, sustainable development, and creates a positive social impact.

MorinGuard® reduces inflammation and accelerates skin recovery from irritation

MorinGuard® demonstrates significant anti-inflammatory and skin recovery benefits both

in vitro and *in vivo*. Inflammation in skin is characterized by elevated inflammatory markers, matrix-metalloproteinases (MMPs), and nitric oxide (NO). In human dermal fibroblasts stimulated with IL-1 β , MorinGuard® significantly reduced levels of key inflammatory markers such as IL-6, IL-8, PGE2, and 8-isoprostane, indicating its ability to soothe inflammation and support skin health. In human keratinocytes (HaCaT) treated with Poly I:C, the compound reduced the synthesis of MMP-1 and MMP-9—enzymes responsible for collagen breakdown and immune cell migration, thus, helping preserve skin structure. Additionally, in LPS-stimulated immune cells, MorinGuard® dose-dependently lowered NO production, reducing oxidative stress and redness (data not shown). An *in vivo* study further confirmed the protective role of MorinGuard® role in skin recovery. Following skin irritation via dermaroller needling, MorinGuard®—alone and in combination with Lipoid Kosmetik's SLM Skin Lipid Matrix®, a biomimetic lipid complex—significantly accelerated skin recovery. Microcirculation normalized 47 % faster with MorinGuard® alone and 51 % faster with MorinGuard® + SLM. Similarly, skin barrier function (measured via TEWL) recovered 30 % faster with MorinGuard® and 55 % faster when combined with SLM (Figure 1).

Conclusion

MorinGuard® is a COSMOS- and NATRUE-approved, effective and eco-friendly active ingredient based on the upcycled and traceable moringa seed cake. It significantly accelerates the recovery of irritated skin, especially in combination with SLM Skin Lipid Matrix® making it a great choice for skin recovery and protection. MorinGuard® represents a new era in cosmetic active ingredients going beyond beauty benefits. It's more than a product – it's a statement of care for the skin, the community, and the environment.

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Lipoid
Kosmetik



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

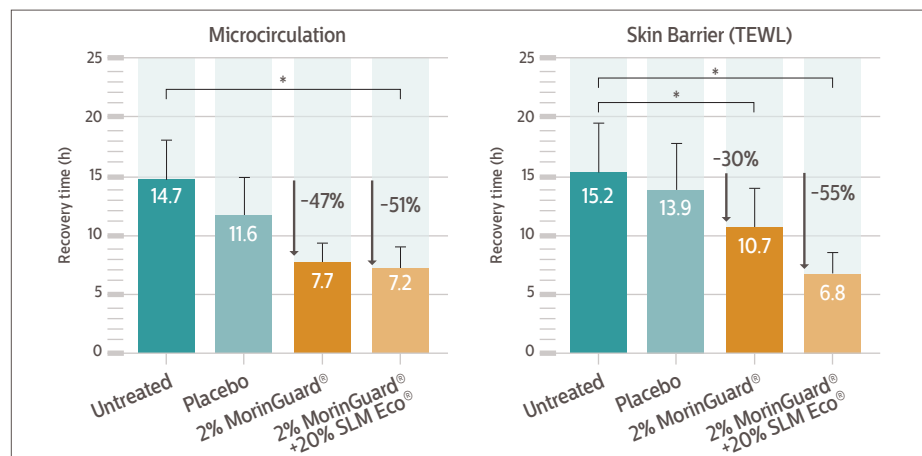


Figure 1: MorinGuard® accelerates skin recovery after irritation.