THE INDIAN PADAUK

Indian Padauk (Pterocarpus marsupium) is a tree native to India, Nepal, and Sri Lanka, traditionally used in Ayurvedic medicine. Its bark and heartwood have been used for diabetes management, wound healing, and liver protection.

In cosmetics, its extract offers antioxidant, anti-aging, and skin-soothing benefits. It strengthens the skin barrier, reduces irritation, and protects against oxidative stress.

The bark contains bioactive compounds like pterostilbene, marsupin, and flavonoids. These provide anti-inflammatory, wound-healing, and oil-balancing properties, making it a valuable natural ingredient.

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DLCERAcalm

THE CERAMIDE INFLUENCER

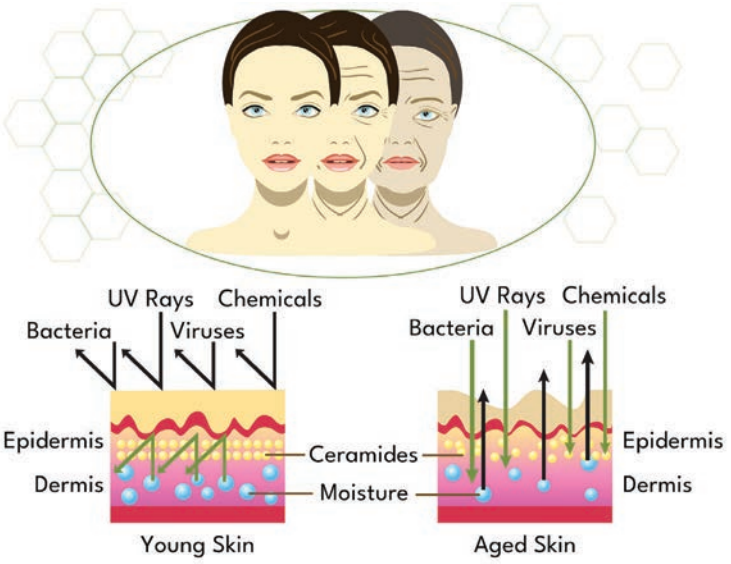
Supporting Ceramide Biosynthesis for Healthier, More Resilient Skin

- Promotes the biosynthesis of natural skin ceramides
- Restores and balances skin ceramides for a healthy skin barrier
- Compatible with ceramides and actives for enhanced performance
- Lipid-soluble active sustainably derived from the Indian kino tree

Addressing the Challenges of Ceramides in Skincare

Ceramides, integral lipids that form the skin's natural barrier, are indispensable for maintaining hydration, resilience, and protection against environmental stressors. They comprise roughly 50% of the epidermis, underscoring their importance in skincare. Yet, as we age, our natural ceramide production declines significantly—by up to 40% in our 30s and 60% by our 40s. This depletion is linked to visible signs of aging, such as dryness, fine lines, and a compromised barrier that is less equipped to retain moisture.

Research shows that ceramides applied to the skin tend to accumulate on its surface rather than integrating into the lipid lamellae—the multilayered lipid structure critical for barrier function. This inability to assimilate limits the long-term efficacy of ceramide-based products, making it challenging for consumers to see meaningful, sustained results.



As a premium ingredient, ceramides are expensive to source and often present formulation challenges. They can be difficult to stabilize and disperse effectively, adding complexity and cost to product development. Inconsistent delivery of benefits further complicates their use, particularly when combined with other actives that may inadvertently deplete ceramide levels, such as Vitamin A and Vitamin C.

The cosmetic and personal care industry has long sought a solution that addresses these challenges without compromising performance. Enter **DL CERAcalm**, a breakthrough ingredient that redefines how we approach ceramide support in skincare formulations.

Product Information

Trade Name: DL CERAcalm

INCI: Glyceryl Ricinoleate (and) Linolenic Acid (and) Pterocarpus Marsupium Bark Extract

Origin: Vegetable extraction and vegetable origin synthetic

Appearance: Liquid

Color: Progressively deepening yellow hue

Odor: Characteristic

Solubility: Lipid-soluble

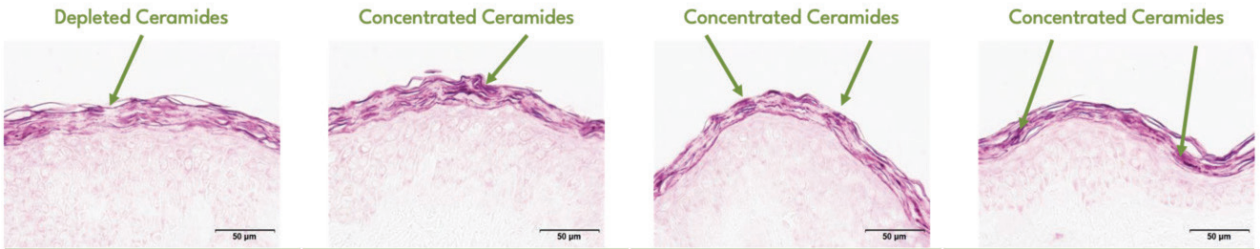
Recommended Use Level: 1-3% by weight of formulation

Clinically Proven To Boost Ceramide Biosynthesis

Clinical studies on **DL CERAcalm** utilized reconstructed human epidermis (RHE) and ex vivo human skin explant models to evaluate its impact on ceramide biosynthesis and barrier repair. In the RHE model, LC-MS analysis demonstrated that **DL CERAcalm** maintained both short-chain and long-chain ceramides at baseline levels, preventing the depletion caused by active ingredients like Vitamin A and Vitamin C. Additionally, in an atopic dermatitis-mimicking study, **DL CERAcalm**, when combined with niacinamide, significantly suppressed inflammatory cytokine-induced EOS ceramide overexpression, helping to restore a balanced ceramide profile in compromised skin.

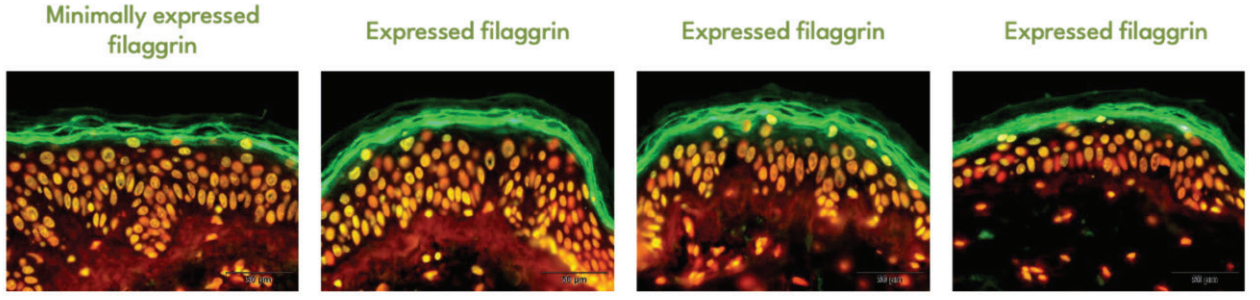
Ex vivo human skin explants further confirmed **DL CERAcalm**'s ability to accelerate barrier repair. When applied at 1% and 3% concentrations in both an anhydrous and emulsion vehicle, ceramide levels increased by approximately 20% compared to untreated controls. Additionally, filaggrin expression—a key protein in skin barrier formation—was significantly enhanced, further supporting **DL CERAcalm**'s role in strengthening the epidermal barrier. These findings confirm its efficacy as a ceramide-supporting active for improving skin resilience and hydration.

ACCELERATED BARRIER REPAIR – CERAMIDES



Untreated Control	1% DL CERAcalm in capric/caprylic triglycerides	3% DL CERAcalm in capric/caprylic triglycerides	1% DL CERAcalm in a skin cream (o/w) FORMULA NO: AP-1-8
% increase vs. untreated control	+23%	+19%	+19%
% increase vs. untreated control	<0.5	<0.5	<0.5

ACCELERATED BARRIER REPAIR – FILAGGRIN

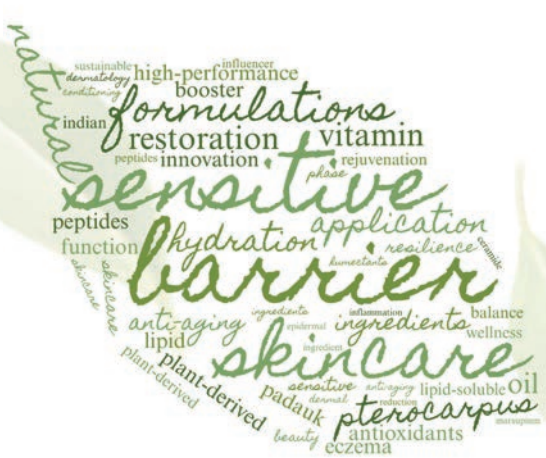


Untreated Control	1% DL CERAcalm in capric/caprylic triglycerides	3% DL CERAcalm in capric/caprylic triglycerides	1% DL CERAcalm in a skin cream (o/w) FORMULA NO: AP-1-8
% increase vs. untreated control	+14%	+19%	+12%
% increase vs. untreated control	<0.1	<0.1	<0.1

APPLICATIONS

DL CERAcalm is a lipid-soluble cosmetic ingredient, making it suitable for oil-based formulations and emulsions. It is best incorporated into the oil phase of formulations or added after emulsion formation, withstanding processing temperatures of up to 65˚C for short periods. The ideal formulation pH ranges between 4.5 and 6.5, ensuring stability and efficacy in a variety of skincare applications.

This ceramide-supporting active can be formulated into creams, lotions, gels, oils, and anhydrous products to enhance skin hydration, repair, and barrier function. It is especially effective in anti-aging skincare when combined with ceramides, niacinamide, peptides, and vitamins A and C. Additionally, it can be used in OTC skin protectant formulations for eczema-prone or severely dry skin, making it a versatile ingredient for both daily and therapeutic skincare.



- Supports Ceramide Biosynthesis
- Enhances Performance of Actives
- Anti-Aging
- Enhances Skin Barrier Function
- Sustainable & Plant-Derived
- Skin Repair
- Hydration & Moisturization
- Lipid-Soluble & Versatile

References:

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