



An Assessment of Daikon Seed Extract's Ability to Improve Skin Barrier Function

Background:

Daikon Seed Extract (DSE) is a fully-refined triglyceride derived from the seeds of *Raphanus sativus* grown in the Willamette Valley of Oregon. DSE imparts a delicate skin feel and emolliency, and its aesthetics differ qualitatively from other botanicals.

Objective:

To evaluate the ability of DSE to improve skin barrier function in comparison to three well-known emollients used in skin care.

Number of Subjects:

Twenty-seven

Test Area:

Volar forearm

Test Products:

Daikon Seed Extract, Meadowfoam Seed Oil, 100 cps dimethicone, and isopropyl palmitate (IPP).

Endpoint:

Trans-Epidermal Water Loss (TEWL)

A reduction in trans-epidermal water loss indicates measured increase in skin barrier function.

Instrument:

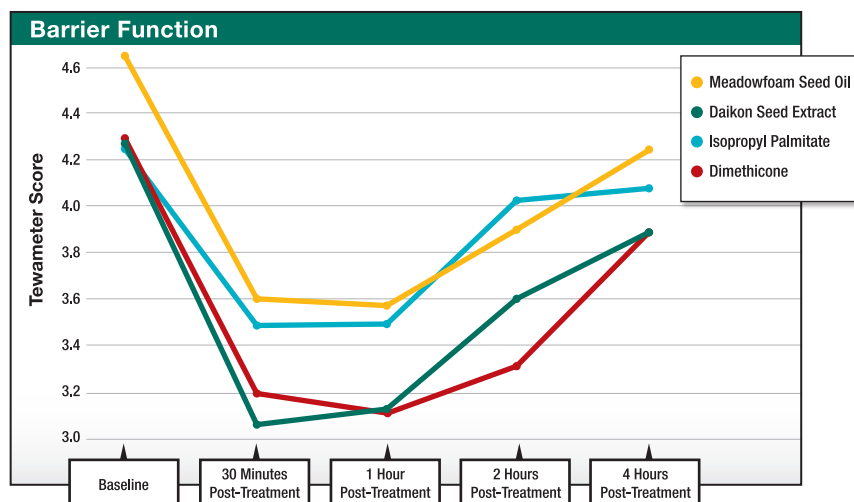
DermaLab Evaporimeter (Cortex Technology, Hadsund, Denmark)

Methodology:

After a three day washout on forearms with neutral soap bar and no usage of personal care products on the test sites, subjects reported to the testing facility. The testing facility was maintained at 20-22° C and 30-50% relative humidity. Four test sites measuring 4x4 cm were demarcated on the volar forearms at least 2 cm from the wrist and elbow, with at least 2 cm between adjacent test sites.

Daikon Seed Extract

Mean Tewameter Score				
	Meadowfoam Seed Oil	Daikon Seed Extract	Isopropyl Palmitate	Dimethicone
Baseline	4.67	4.25	4.13	4.3
30 Minutes Post-Treatment	3.6	3.07	3.45	3.2
1 Hour Post-Treatment	3.57	3.13	3.46	3.12
2 Hours Post-Treatment	3.9	3.6	4.02	3.32
4 Hours Post-Treatment	4.24	3.87	4.07	3.87



After test site demarcation, subjects remained in the testing facility with the test sites uncovered and exposed for 15 minutes. After this equilibration period, a baseline measurement was taken at each test site. Trained clinical staff then applied 1 mg/cm² of a test product to the test sites using a finger cot. Products were assigned to test sites using a randomized design with each subject having all four products applied.

Subjects remained in the test area with the test sites uncovered and exposed for 30 minutes at which point the first TEWL measurement was taken. Participants were sequestered in the testing facility for the balance of the study, and TEWL measurements were taken at 1 hour, 2 hours, and 4 hours post-application after allowing participants to equilibrate for 15 minutes in the measurement room.

Statistical Analysis:

Mean reduction in TEWL from baseline was calculated for each treatment. The data were subjected to a two-tailed paired t-test with significance set at a p-value of 0.05. Treatments were compared to the untreated baseline and against other treatments.

TEWL (Barrier Function) Results:

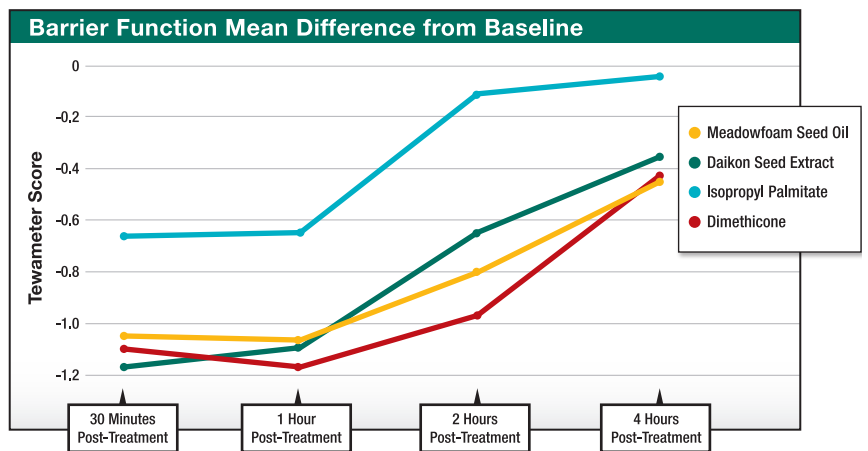
DSE, MSO, and 100 cps dimethicone significantly reduced TEWL at 30 minutes, 1 hour, 2 hours, and 4 hours post-application compared to the baseline. IPP significantly reduced TEWL at 1 hour and 2 hours post-application. The performance of DSE was significantly different from the performance of IPP at the 30 minute, 1 hour and 2 hour marks.

Conclusions:

DSE decreased TEWL and significantly increased barrier function compared to isopropyl palmitate at all measurement points during the study demonstrating the enhanced utility of DSE that can be achieved while maintaining the light skin feel associated with IPP.

There was no statistical difference in performance between DSE, MSO, and 100 cps dimethicone demonstrating that DSE performs comparably to well-known cosmetic emollients.

Mean Tewameter Score				
	Meadowfoam Seed Oil	Daikon Seed Extract	Isopropyl Palmitate	Dimethicone
30 Minutes Post-Treatment	-1.07	-1.18	-0.68	-1.1
1 Hour Post-Treatment	-1.1	-1.12	-0.67	-1.17
2 Hours Post-Treatment	-0.77	-0.65	-0.11	-0.97
4 Hours Post-Treatment	-0.44	-0.38	-0.06	-0.43



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