



Transepidermal Water Loss Assay

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Tradename: BiEau® Actif Green Algae

Code: 16906

CAS #: 223751-80-2

Test Request Form #: 5005

Lot #: N190402F

Sponsor: Active Concepts, LLC; 107 Technology Drive Lincolnton, NC 28092

Study Director: Maureen Danaher

Principle Investigator: Kara Rivera

Test Performed:

Transepidermal Water Loss Study

Introduction

An *in-vivo* study was conducted to evaluate the ability of **BiEau® Actif Green Algae** to enhance barrier function through reduction in Transepidermal Water Loss (TEWL) after one application. Results indicate that this material is capable of efficiently reducing TEWL which allows moisture retention.

Materials

A. Equipment: DermaLab Skin Combo

Methods

Ten volunteers M/F between the ages of 23 and 45 and who were known to be free of any skin pathologies participated in this study. A Dermalab Combo was used to measure TEWL on the subject's volar forearms. The instrument consists of a probe that is based upon the vapor gradient with an open chamber. This open chamber design maintains the free natural evaporation from the skin without interfering with the environment over the measurement area. This ensures unbiased and accurate readings. Operation of the water loss module is fully menu driven, allowing for pre-setting and standard deviation or measurement time.

Following initial measurements, all subjects were asked to apply 2.0 milligrams of each test material on their volar forearms. Measurements were then taken 24 hours after application of the test materials. The experimental material consisted of 2.0% **BiEau® Actif Green Algae** in a base lotion.

For added perspective, measurements of an untreated test site and a site treated with a base lotion (Cetaphil Moisturizing for All Skin Types) were recorded.

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Results

Averages	T = 0	T = 1 Week	T = 2 Weeks	T = 3 Weeks	T = 4 Weeks
Experimental (2.0% BiEau® Actif Green Algae in Base Lotion)	3.42	2.65	2.58	2.62	2.30
Base Lotion	3.48	2.76	2.90	3.02	2.64
Untreated	3.86	3.40	3.44	3.28	2.76

Figure 1: Average impedance values.

Percent (%) Change	T = 0	T = 1 Week	T = 2 Weeks	T = 3 Weeks	T = 4 Weeks
Base Lotion vs. Untreated	-9.97%	-18.82%	-15.57%	-8.08%	-4.43%
Experimental (2.0% BiEau® Actif Green Algae in Base Lotion) vs. Untreated	-11.53%	-22.06%	-24.89%	-20.27%	-16.76%
Experimental (2.0% BiEau® Actif Green Algae in Base Lotion) vs. Base Lotion	-1.73%	-3.99%	-11.03%	-13.27%	-12.90%

Figure 2: Percent change.

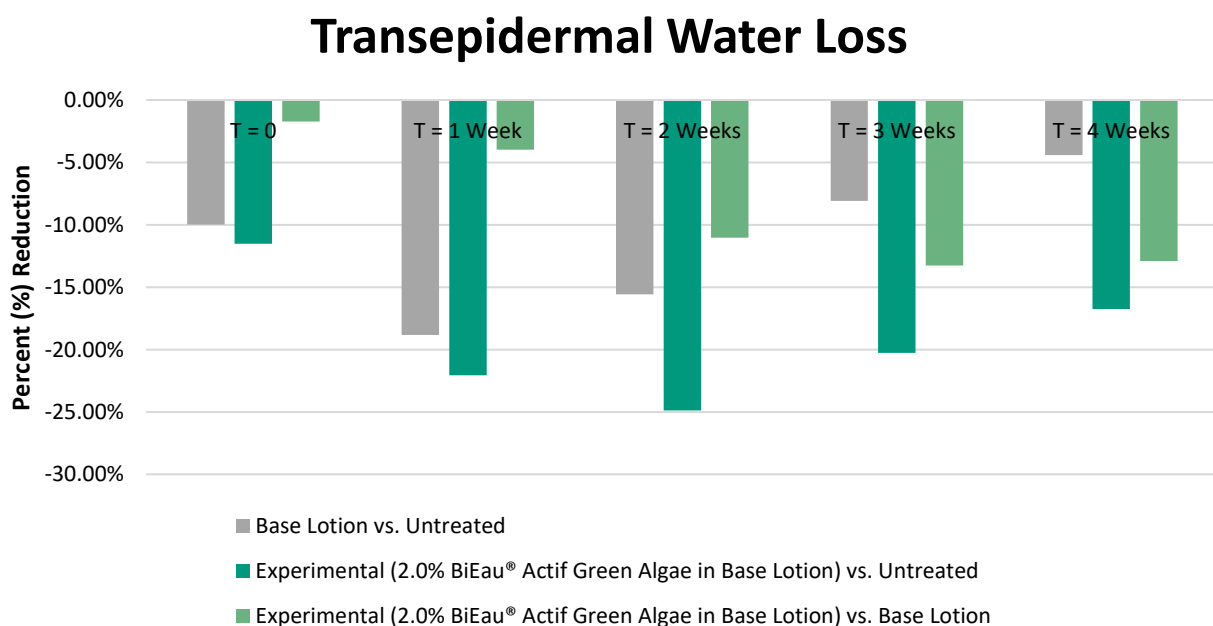


Figure 3: Improvements in barrier function following application of the test materials after a period of 4 weeks.



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Discussion

As shown in Figure 3, results indicate continuous improvements in the barrier of the skin throughout the 4 week test period. After 1 week, the lotion containing 2.0% **BiEau® Actif Green Algae** decreased TEWL by 3.99% more effectively than the base lotion alone. After four weeks, the lotion containing 2.0% **BiEau® Actif Green Algae** demonstrated even more effective barrier protection, decreasing TEWL 12.90% better than the base lotion alone.