Active Concepts

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Moisturization/ Hydration Assay

Tradename: ACB Tonka Bean Bioferment PF

Code: 20431PF

CAS #: 90028-06-1

Test Request Form #: 935

Lot #: 37408

Sponsor: *Active Concepts, LLC; 107 Technology Drive Lincolnton, NC 28092*
Study Director: *Erica Segura*
Principle Investigator: *Meghan Darley*

Test Performed:
Moisturization/ Hydration Assay

Introduction

An *in-vivo* study was conducted over a period of three weeks to evaluate the moisturization benefits of **ACB Tonka Bean Bioferment PF**. 10 M/F subjects between the ages of 23-45 participated in the study. Results indicate that this material is capable of significantly increasing moisturization compared to the control.

The Moisturizaiton Assay was conducted to assess the moisturizing ability of **ACB Tonka Bean Bioferment PF**.

Materials

A. Equipment: DermaLab Skin Combo (Hydration/ Moisture Pin Probe)

Methods

The moisture module provides information about the skin's hydration by measuring the conducting properties of the upper skin layers when subjected to an alternating voltage. The method is referred to as a conductance measurement and the output is presented in the unit of uSiemens (uS). A moisture pin probe is the tool used to gather hydration values.

10 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 Corneometer was used to measure the moisture levels on the subject's volar forearms. The Corneometer is an instrument that measures the amount of water within the skin. The presence of moisture in the skin improves conductance therefore results in higher readings than dry skin. Therefore the higher the levels of moisture, the higher the readings from the Corneometer will be. Baseline moisturization readings were taken on day one of the study.

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Following initial measurements, all subjects were asked to apply 2 mg of each test material on their volar forearms. Measurements were taken immediately after application of test materials and then weekly for 3 weeks. The test material consisted of 2.0% **ACB Tonka Bean Bioferment PF** 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.

Results

ACB Tonka Bean Bioferment PF showed very high moisturizing capabilities at a 2.0% concentration. Please note, each value is an average of three consecutive readings per test site.

Moisturization		T = 0	T = 24 Hours	T = 1 Week	T = 2 Weeks	T = 3 Weeks	T = 4 Weeks	T = -24 Hours	T = -1 Week	T = -2 Weeks
Panelist 1	Experimental	119	125	149	199	211	215	200	88	83
	Base Lotion	109	125	132	139	192	201	113	89	86
	Untreated	108	97	102	111	115	130	128	105	94
Panelist 2	Experimental	123	187	211	250	260	270	115	101	98
	Base Lotion	162	150	157	185	195	215	149	125	125
	Untreated	121	107	87	88	111	220	103	95	94
Panelist 3	Experimental	107	116	120	215	220	235	175	165	160
	Base Lotion	72	100	132	142	155	185	151	107	100
	Untreated	126	139	117	132	130	165	232	162	154
Panelist 4	Experimental	97	112	142	202	215	225	153	132	101
	Base Lotion	83	115	122	128	142	155	152	151	74
	Untreated	62	78	74	92	89	96	88	80	151
Panelist 5	Experimental	99	135	156	200	250	265	157	149	147
	Base Lotion	87	107	175	181	187	195	103	102	74
	Untreated	89	92	102	112	109	115	103	83	83
Panelist 6	Experimental	68	125	155	167	177	182	138	120	118
	Base Lotion	69	115	127	135	143	152	105	110	99
	Untreated	70	59	74	87	110	82	80	69	87
Panelist 7	Experimental	145	164	170	200	229	230	225	125	118
	Base Lotion	98	105	109	115	125	168	144	106	104
	Untreated	139	124	121	132	145	126	125	157	132
Panelist 8	Experimental	140	182	220	235	240	247	238	196	188
	Base Lotion	148	151	154	200	207	226	255	204	181
	Untreated	106	103	106	158	184	107	106	109	106
Panelist 9	Experimental	79	146	178	197	199	200	105	92	91
	Base Lotion	62	112	74	176	179	180	80	75	59
	Untreated	82	85	91	123	125	177	98	94	92
Panelist 10	Experimental	97	110	132	165	185	192	111	90	84
	Base Lotion	102	111	121	185	192	203	127	100	89
	Untreated	93	92	99	107	110	101	134	105	102
Number of Panelists		10	10	10	10	10	10	10	10	10

Chart 1. Panelist Moisturization Measurements

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Averages	T = 24 Hours	T = 1 Week	T = 2 Weeks	T = 3 Weeks	T = 4 Weeks	T = -24 Hours	T = -1 Week
2.0% ACB Tonka Bean Bioferment PF in Base Lotion	140.2	163.3	203	218.6	226.1	161.7	125.8
Base Lotion	119.1	130.6	158.6	171.7	188	137.9	116.9
Untreated	97.6	97.3	114.2	122.8	131.9	119.7	105.9

Chart 2. Average Moisture Increase and Regression Scores of Individual Test Sites

Percent (%) Change	T = 24 Hours	T = 1 Week	T = 2 Weeks	T = 3 Weeks	T = 4 Weeks	T = -24 Hours	T = -1 Week
Base Lotion vs. Untreated	22.02	33.91	38.87	39.82	42.53	15.20	10.38
2.0% ACB Tonka Bean Bioferment PF + Base Lotion vs. Untreated	43.64	67.83	77.75	78.01	71.41	35.08	18.79
2.0% ACB Tonka Bean Bioferment PF in Base Lotion vs. Base Lotion	17.71	25.32	27.99	27.31	20.26	17.25	7.613

Chart 3. Comparative Moisture Increase and Regression Scores Between Individual Test Sites

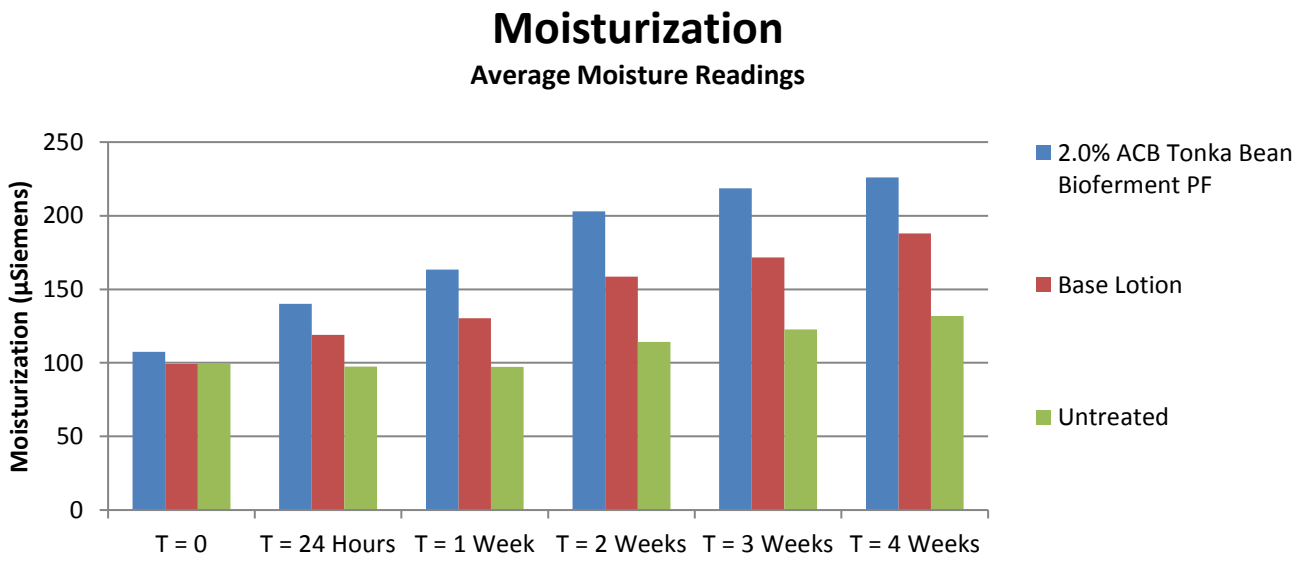

Figure 1. Average increase in moisturization per test site

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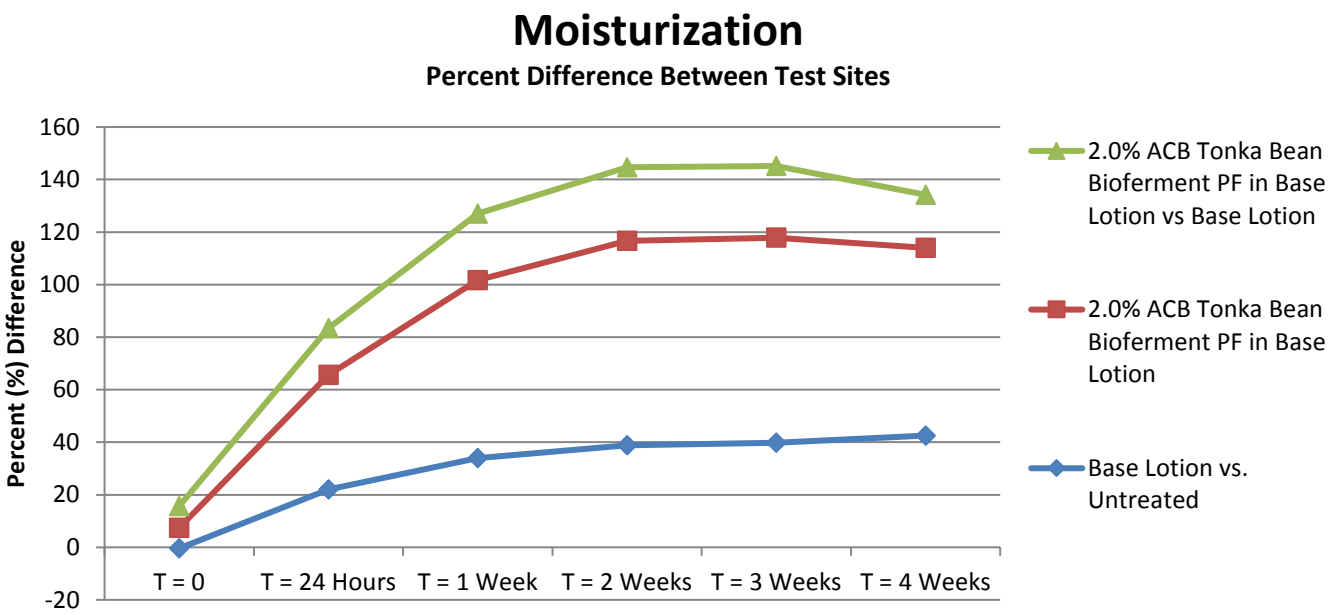

Figure 2. Percent difference in moisturization between two test sites over four weeks

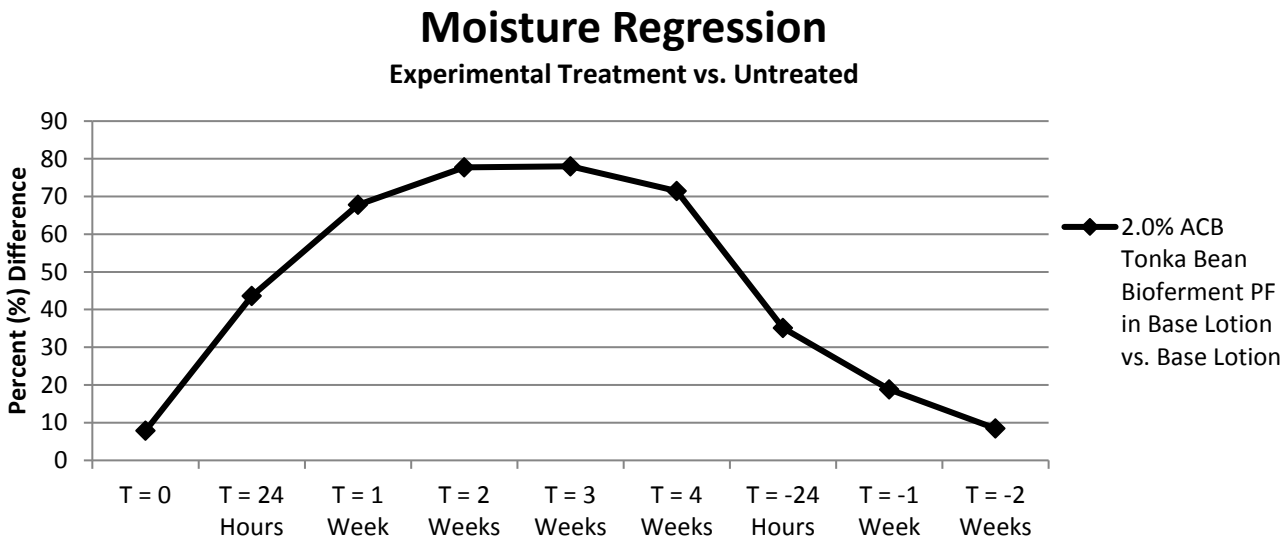

Figure 3. Regression in skin moisturization after application of experimental material ceased

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Discussion

As evidenced in a 4 week efficacy study of **ACB Tonka Bean Bioferment PF** on skin, moisture levels were improved by 43.6% after 24 hours and by 71.41% after 4 weeks when compared to the untreated control. Comparisons of the base lotion to the Experimental Lotion containing 2.0% **ACB Tonka Bean Bioferment PF** demonstrate the experimental material moisturized the skin 21.0% better after 24 hours. After four weeks the base lotion containing 2.0% **ACB Tonka Bean Bioferment PF** moisturized skin 20.2% better than the base lotion alone. Results indicate that **ACB Tonka Bean Bioferment PF** is capable of increasing moisturization when compared to both the untreated control as well as the base lotion.

Furthermore, when examining the moisture levels on the skin after application of test materials stopped, it was determined that **ACB Tonka Bean Bioferment PF** is capable of sustaining increased skin moisturization when compared to the skin site that remained untreated through the duration of the study. After 24 hours, the site testing 2.0% **ACB Tonka Bean Bioferment PF + Base Lotion** was approximately 35.0% more moisturized than the site which did not receive treatment. After one week, the experimental test site was still yielding moisturization results that were 18.7% higher than the untreated site. Additionally, in comparison to the site tested with the base lotion alone, the site treated with 2.0% **ACB Tonka Bean Bioferment PF + Base Lotion** moisturized the skin 17.2% better after 24 hours and was still 7.61% more effective in moisturizing the skin when reading were taken one week after the applications of both test materials ceased.

ACB Tonka Bean Bioferment PF was designed to provide moisturizating benefits, however with the present study we can confirm that this succulent botanical ingredient is not only capable of providing protective benefits but also ideal for moisturizing and skin hydrating personal care applications.