

Reduced Hair Damage with the use of Hydrolyzed Jojoba Esters in a Hair Conditioner Formula

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Abstract

Chemically-damaged hair is unhealthy hair. Damage to hair, and subsequent repair, were measured as: comb-through resistance (wet and dry), breakage, and consumer perception. These tests showed that hydrolyzed jojoba esters (Floraesters® K-100 Jojoba) can ameliorate damage to hair. Virgin, natural-blonde hair tresses were bleached for ninety minutes to controllably damage the hair. Tresses (in triplicate) of the damaged hair were treated with a simple rinse-out conditioner, with or without hydrolyzed jojoba esters. The conditioner was allowed to sit on the hair for ten minutes followed by rinse-out and blow-dry. The hair tresses treated with hydrolyzed jojoba esters showed significant improvement in the above-mentioned industry-accepted instrumental tests. These results were corroborated by a consumer perception panel test. Used at low levels in formulations with an optimized pH (less than 5.0), hydrolyzed jojoba esters deposit on the hair from rinse-out shampoo or conditioner products (as measured by weight) and provide a conditioning effect to damaged hair.

More Favorable Consumer Perception with Floraesters K-100 Jojoba

Purpose:

The purpose of this portion of the study was to determine if Floraesters K-100 Jojoba produced a more favorable consumer perception.

Design:

Tresses originally treated during the breakage test were analyzed by consumers for "healthiness" and "softness."

Results:

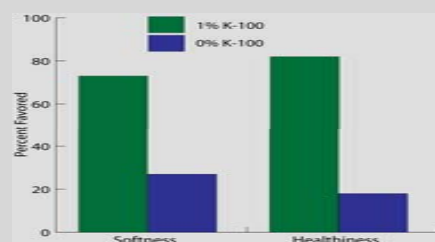


FIGURE 1:
Consumer Perception

Floraesters K-100 Jojoba increases consumer perception of health of damaged hair by 64% and softness by 46%.

Deposition Of Floraesters K-100 Jojoba

Purpose:

The purpose of this portion of the study was to demonstrate that Floraesters K-100 Jojoba will, in fact, remain deposited on the hair after rinse-off.

Design:

- 6 tresses were stripped using a stripping shampoo
- Excess water was removed from each tress and the hair was dried in a reproducible manner
- Tresses were weighed analytically
- 3 tresses were washed using a simple shampoo (sulfate-free) with 1% Floraesters K-100 Jojoba
- 3 tresses were washed using a simple shampoo without Floraesters K-100 Jojoba
- Excess water was removed from each tress and the hair was dried in a reproducible manner
- Tresses were weighed analytically
- This process was repeated using a simple conditioner instead of a simple shampoo

Table 1: Percent Change in Mass - Simple Shampoo

Product	Replicate	Percent Change
0% K-100	1	-0.01%
	2	+0.54%
	3	+0.03%
1% K-100	1	+1.08%
	2	+1.43%
	3	+1.17%

Mean Percent Changes

+1.23%

+0.19%

p<0.10 between test products

Table 2: Percent Change in Mass - Simple Conditioner

Product	Replicate	Percent Change
0% K-100	1	-0.23%
	2	-0.51%
	3	-0.24%
1% K-100	1	+2.19%
	2	+0.34%
	3	+1.24%

Mean Percent Changes

+0.92%

-0.33%

p<0.10 between test products

Floraesters K-100 Jojoba remains deposited on the hair after rinse-off.

Reduced Comb Force with Floraesters K-100 Jojoba

Purpose:

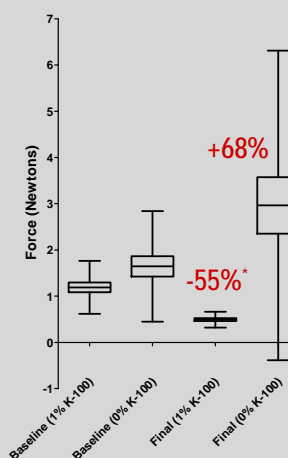
The purpose of this portion of the study was to demonstrate that the addition of Floraesters K-100 Jojoba to a simple rinse-out conditioner will decrease both wet and dry comb force.

Design:

- 6 tresses were stripped using a stripping shampoo
- Tresses were bleached using a commercially available bleach kit for 90 minutes (damage)
- The 6 tresses were again stripped using a stripping shampoo
- Wet comb force was determined
- Tresses were dried
- Dry comb force was determined
- 3 tresses were treated with a simple rinse-out conditioner with 1% Floraesters K-100 Jojoba
- 3 tresses were treated with a simple rinse-out conditioner without Floraesters K-100 Jojoba
- Wet comb force was measured
- Tresses were dried
- Dry comb force was determined

Results:

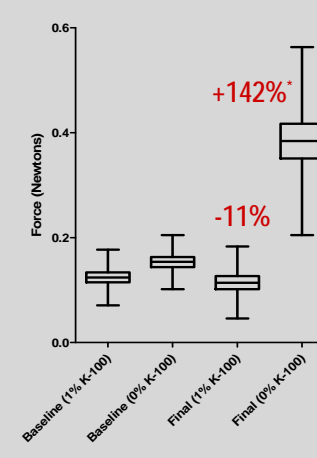
FIGURE 2: Wet Comb Force



p<0.001 between test products

* p<0.001 between baseline and final

FIGURE 3: Dry Comb Force



Mean ± Standard Deviation

Mean ± Standard Error Mean

— Mean

Floraesters K-100 Jojoba decreases wet and dry comb force of damaged hair up to 55%.

Reduced Breakage with Floraesters K-100 Jojoba

Purpose:

The purpose of this portion of the study was to demonstrate that the addition of Floraesters K-100 Jojoba to a simple rinse-out conditioner will decrease hair breakage.

Design:

- 6 tresses were stripped using a stripping shampoo
- Tresses were bleached using a commercially available bleach kit for 90 minutes (damage)
- the 6 tresses were again stripped using a stripping shampoo
- Tresses were dried
- Breakage was determined
- 3 tresses were treated with a simple conditioner with 1% Floraesters K-100 Jojoba
- 3 tresses were treated with a simple conditioner without Floraesters K-100 Jojoba
- Tresses were dried
- Breakage was determined

Table 3: Breakage

Product	Baseline - Broken Hair Fibers	Final - Broken Hair Fibers
0% K-100	69	40
	75	43
	70	47
1% K-100	71	17
	81	10
	64	11

Mean Percent Changes

-82%

-39%

p<0.10 between test products

Floraesters K-100 Jojoba decreases breakage in damaged hair by 82%.

Conclusions

1% Floraesters K-100 Jojoba in a rinse-off conditioner:

- decreases comb force of damaged hair up to 55%
- decreases breakage in damaged hair by 82%
- increases consumer perception of health of damaged hair by 64% and softness by 46%

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