

Test of cosmetic valuation, acceptability and efficacy of Jojoba Oil (*Simmondsia Chinensis*) on a reddish hair dye

The objective of this test has been to sensorially evaluate a hair dye of red tints with Jojoba Oil in different concentrations and a control sample in a half head test. To back these results by evaluating instrumentally the hair color *in vivo* and by means of a non invasive method to verify the color permanence. This test has been carried out by CLAIM – Evaluation of cosmetic efficacy counseling, and conducted by Dr. Silvia H. Pérez Damonte.

Test Procedures

The cream dye used shows creamy aspect without lumps (viscosity between 90,000-200,00 cP), characteristic color according to standard, ammoniacal smell but the perfume can be perceived, ph between 10 and 11.2. The revealing cream contains Hydrogen Peroxide

The panelists were asked not to wash their hairs for three days before attending the testing room. The colored cream, prepared with 60 gr of dye and 90 cm³ of hydrogen peroxide of 20 volumes (150 gr of dye), was applied.

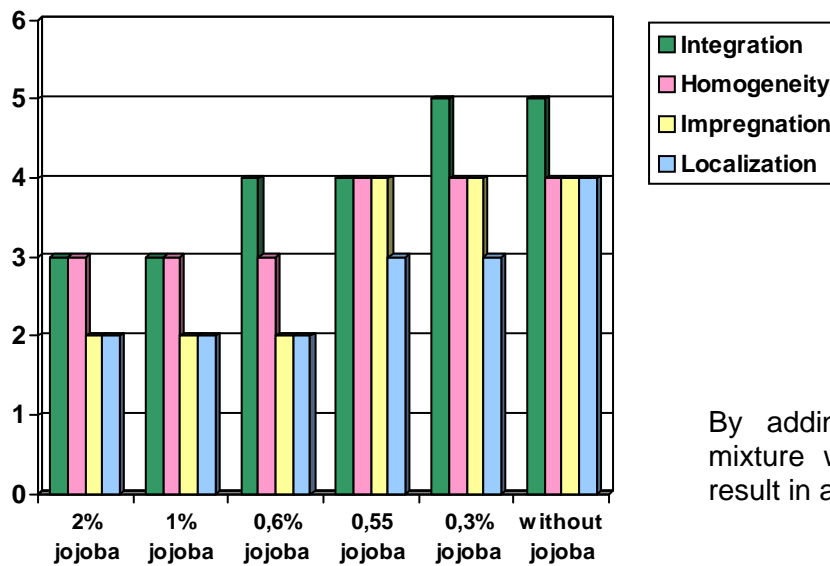
Different mixtures with variable concentrations were made – 2% (3 gr), 1% (1.5 gr), 0.6% (1 gr), 0.5% (0.75 gr), 0.3% (0.5 gr) of jojoba oil.

The application was made according to the test, one half without jojoba oil and the other half with jojoba oil. The panelists were divided in groups of three for each concentration.

Results and discussions

All 15 panelists completed satisfactorily this test. No skin reaction was observed during the period of testing.

Values corresponding to the preparation and application of the product according to time



By adding jojoba oil to the mixture we come to a better result in a shorter period of time

Sensorial evaluation during the dye application

- In the comparative, a better performance was observed when adding 30% of jojoba oil to the mixture.
- When applying the coloring mixture to length and tip of the hair, the comb slides more easily, avoiding pulling the hair. The application of the product is much pleasant for the client and the hairdresser.
- During the rest period, it is possible to verify that the reddish dye with jojoba oil penetrates in the hair much more easily.

Post application sensorial evaluation, color results and hair condition

- During emulsion and rinsing, a more quickly elimination of the product with jojoba oil was observed and as well as less adherence to the skin (stains) compared to control dye.
- Combing was better in the side where the coloring mixture with jojoba oil had been applied.
- Brightness was superior in damp and dry hair.
- The use of jojoba enhances the red tints and contributes with luminosity and transparency improving the quality of reflection.
- The improvement evaluation as regards permanence of color was outstanding in those who used the dye with jojoba oil in concentrations of 2%, 1% and 0.6%.

Instrumental evaluation

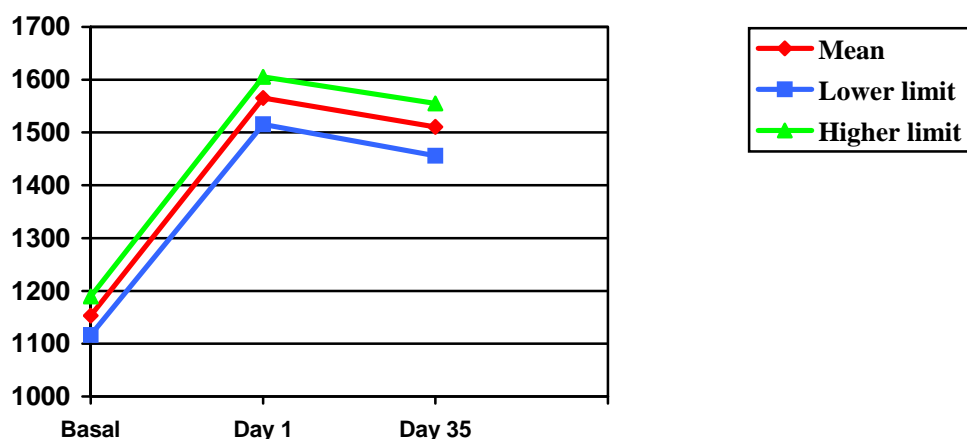
This test was carried out with a Mexameter that measures quantitatively the melanin or pigment of the hair, through an *in vivo* and non invasive technique.

Panelist	Basal	without jojoba		with jojoba	
		Day 1	Day 35	Day 1	Day 35
MN	1174	1620	1499	1680	1640
SR	1195	1600	1534	1634	1584
TU	1226	1435	1343	1480	1428
GR	1081	1576	1387	1600	1500
MP	1185	1647	1576	1678	1638
SS	1114	1345	1220	1390	1315
PY	1101	1710	1649	1715	1670
RT	1147	1512	1477	1567	1537
HI	1259	1578	1599	1601	1581
LJ	1122	1453	1344	1498	1438
BM	1156	1477	1367	1499	1414
NT	1026	1525	1478	1502	1470
CF	1234	1527	1498	1535	1523
SP	1198	1449	1299	1499	1424
VF	1078	1568	1437	1598	1498

Summary

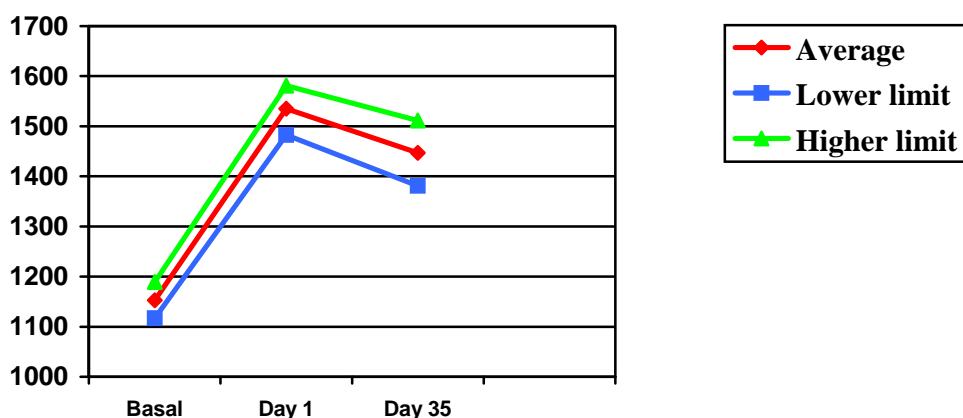
Side of the head with Jojoba Oil

	Basal	Day 1	Day 35
Mean	1153.07	1565.07	1510.67
Standard deviation	65.76	89.76	99.53
Lower limit of confidence interval	1116.73	1515.47	1455.67
Higher limit of confidence interval	1189.13	1604.99	1554.68

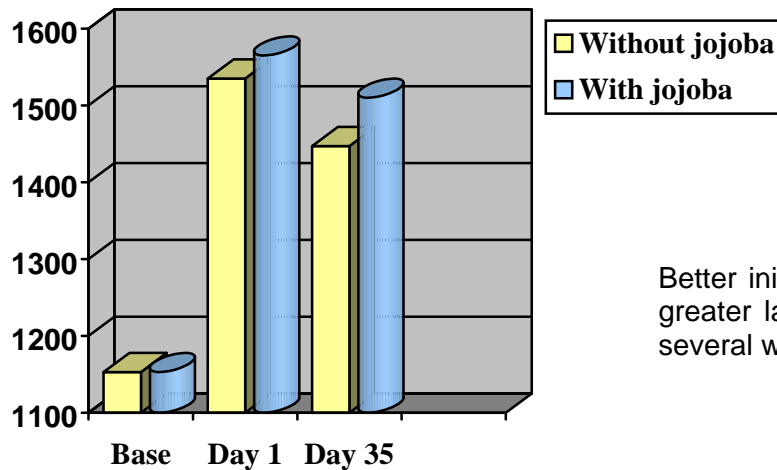


Side of the head without Jojoba oil

	Basal	Day 1	Day 35
Mean	1153.07	1534.8	1447.13
Standard deviation	65.76	93.93	119.6
Lower limit of confidence interval	1116.73	1482.9	1381.05
Higher limit of confidence interval	1189.13	1580.85	1511.51



Permanence of color according to time



Better initial penetration and greater lasting of color after several washes

Conclusion I

Under this technique conditions, the concentrations of 2%, 1% and 0.6% of Jojoba oil are recommended to get a better performance of the reddish hair dye as well as its durability.

Jojoba Oil in a reddish hair dye mixture enables:

Outstanding attributes:

- It makes easier the integration of the mixture.
- It speeds up the application and localization.
- It improves the performance of the product.
- It makes the product removal faster.

Cosmetic Efficacy:

- It improves the disentanglement and combing in the dry or damp hair.
- Superior brightness.
- Both dry and damp hair feel smoother to the touch.
- It allows a better permanence of the color.

Customer's Acceptability

The volunteers spontaneously claimed to have one part of their heads with more intense and brighter color and smoother to the touch.

Daily Comments of volunteers

Volunteer	Comments
MN	Right side brighter (treated with jojoba oil).
SR	The right side (with jojoba) is more docile than the other side.
TU	Easier to style with comb.
GE	Smoother.
MP	I do not feel any difference between both sides.
SS	Brighter color.
PY	The hair looks thicker and brighter.
RT	With more body and easier to comb
HI	Smoother and brighter.
LJ	Color remains longer.
BM	Color remains longer and brighter hair.
NT	Less dry and brighter.
CF	It looks strange.
SP	It is different but better.
VF	Brighter and smoothness.

Conclusion II

The permanence of the color was tested instrumentally but the subjective sense of the panelists was the following:

- 50% of the panelists declared more brilliance.
- 35% of the panelists felt their hair smoother.
- 25% of the panelist noticed that their hair was easier to comb.
- Only 5% didn't notice any positive difference.

None of the panelists participating on this test declared negative attributes on the use of jojoba oil on red color dye.

The test shows that 95% of the panelist noticed a **remarkable and positive difference** on the side treated with jojoba oil, feeling the hair smoother, brighter and more flexible when brushing, while only 5% of the volunteers did not find any difference between one side of the head and the other.