

Lip Plumper: non invasive *in vitro* study of moisturizing and volumizing effect

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Objective This experimental study was conducted with the aim of applying the non-invasive techniques to evaluate the hydrating and volumizing effect of a commercial lip plumper officinalis ginger oil and sodium hyaluronate based within one hour after its application.

Materials And Methods We recruited 20 normal healthy women, older than 18 years, with negative clinical history for aesthetic operations on the lips, rosacea and atopy, without lip diseases in the last month and taken drugs or topical therapy in last week. The experimental design was developed through a baseline phase, corresponding to the time preceding treatment, T1, T2, T3, stages of short term tests, corresponding to 15', 30' and an hour after the application of product.

The parameters evaluated for both the baseline phase and the phase of short term tests were: the effect on increasing hydration by Corneometer CM820, the effect on increasing blood flow by Mexameter MX16, anthropometric measures 2D by 6-point marker of soft tissue with evaluation of distances on digital macrophotography and image analysis technique using 3D replica lip at SEM by MEX software for 3D analysis. Statistical analysis was done using the ANOVA method, $p < 0.05$ was considered significant.

Results And Conclusion The sodium hyaluronate present in the product at issue led to a statistically significant increase in values of hydration of 22.2% compared to baseline with a peak after the first 15'-30'. Officinalis ginger oil is an irritant to mucous membranes, manifested by vasodilation, resulted in a statistically significant increase after the first 15' that has kept this up to 30' and then decreased in intensity. The mucosa was analyzed in the points raised by about 0.5 mm in the first 15'-30' from the product of a complete absence of side effects delayed. Regarding the volumizing effect parameters 2D show an increase in the early 30' but the values were not statistically significant at all times analyzed; parameters 3D has seen an increase of the maximum protrusion of the vermilion after 15' product application and then decreased in intensity.

The cosmetic effect was found for 35% of the volunteers between sufficient and good and 65% low compared to expectations.

Key words

Lip, non invasive analysis, 3D image analysis.