

# Association of Licorice Extract, Vitamins B3 and B5 in a cosmetic formulation for skin oiliness control: clinical efficacy, texture and sensory properties

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## Introduction:

Skin oiliness is a condition characterized for the increase of sebaceous glands and influenced by factors such as age, gender, ethnicity, diet and climate. This condition gives a greasy appearance to the skin and negatively affects self esteem, mainly in women. For this reason, the development of effective formulations for skin oiliness control has been a challenge in the cosmetic area. Licorice (Glycyrrhiza) extract has a rich composition of licochalcone that helps to control sebaceous glands secretion. Vitamin B3 (Niacinamide) has been used in cosmetics for the hyperpigmentation treatment but also demonstrated an anti-inflammatory effect. Vitamin B5 (Panthenol) has been very used in cosmetic formulations for skin hydration and barrier function protection. Thus, these three substances in combination in cosmetic formulations present potential to skin oiliness control and can provide an improvement of skin conditions. Thus, the aim of this study was to develop and evaluate the clinical efficacy of a skin care formulation containing licorice extract, panthenol and niacinamide.

## Materials & Methods:

Formulation development

Licorice extract, Vitamin B3 and Vitamin B5

Vehicle (V)

Active Substances (AS)

Texture profile evaluation



Figure 1. Gel cream spreadability test in the equipment Texturometer TA XT Plus.

Clinical efficacy



Figure 2. Clinical efficacy tests: hydration distribution (Moisture Map ®) and sebum content (Sebumeter®)

## Results & Discussion:

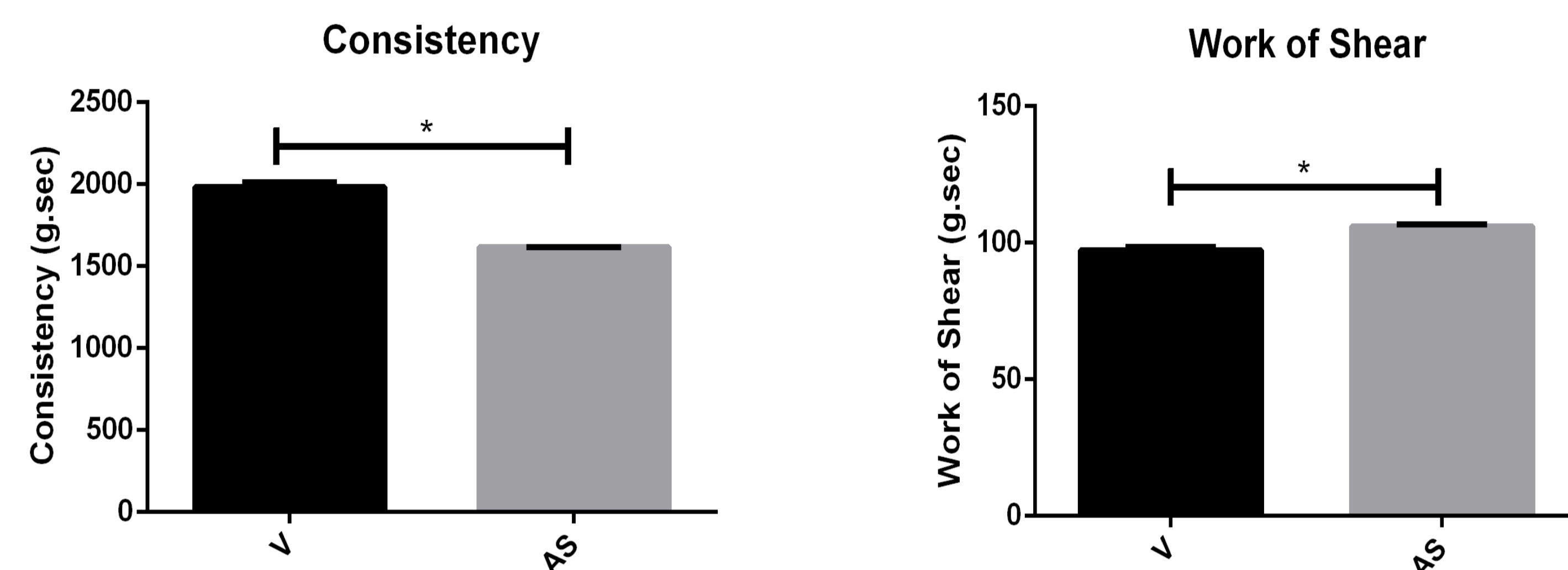


Figure 1. Firmness, consistency, cohesiveness and work of shear parameters of the gel cream formulation containing (AS) or not (V) the active substances. \* Significant compared to Vehicle (V) ( $p < 0.05$ ).

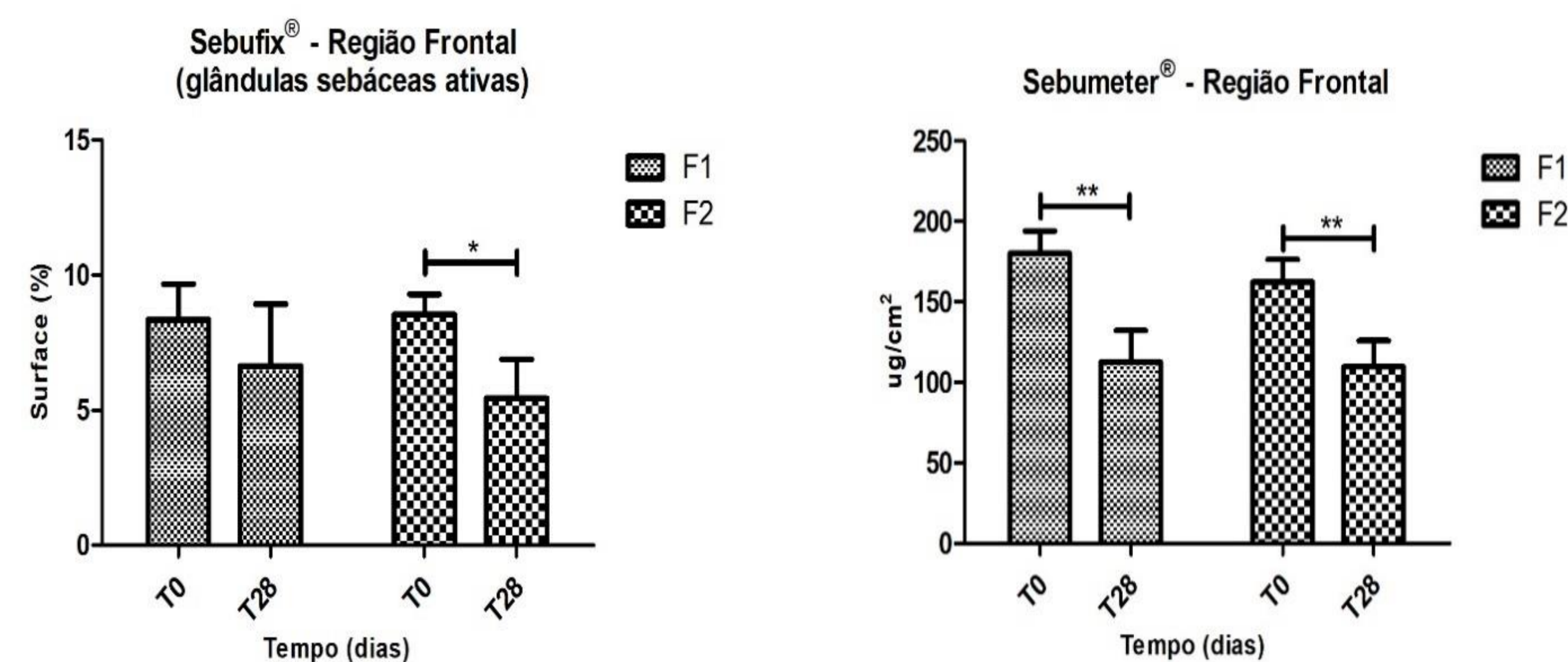


Figure 2. Results of sebaceous glands activity and sebum content. \* Significant when compared to baseline values (T0) ( $p < 0.05$ ). \*\* Significant when compared to baseline values (T0) ( $p < 0.01$ ).

## Conclusions:

The developed skin care formulation containing Licorice Extract, Vitamins B3 in combination was effective for controlling skin oiliness, which provides improvement in the skin hydrolipid conditions due to an increase of skin hydration and a reduction of sebum content. The formulations with active substances under study provoked a decrease in some profile texture parameters such as firmness and consistency and an increase of work of shear, which can be correlated with spreadability. Although an increase in work of shear could be correlated with a lower spreadability, in the sensorial analysis, the study participants considered that the formulation was easy to spread. In addition, the active ingredients can also act as a texture agent in the formulation and provide good sensory properties when a lighter textured cosmetic product is desired. Finally, the proposed formulation was effective for the treatment of oily skin and showed good sensorial properties.

## Acknowledgments:



## References:

Sakuma T, Maibach H (2012). Oily Skin: An Overview. *Skin Pharmacol Physiol* 25:227–235.

Calixto L, Maia Campos P M B G (2017). Physical – Mechanical characterization of cosmetic formulations and correlation between instrumental measurements and sensorial properties. *International Journal of Cosmetic Science*, 39:527–534.

GABARRA, M A, Maia CAMPOS, P M B G (2020) Correlations between sebaceous gland activity and porphyrins in oily skin and hair and immediate effects of dermocosmetic formulations. *Journal of Cosmetic Dermatology*, 19: 1-9.