Evaluation of moisturizing, film-forming and sensory properties of cosmetic formulations containing tara gum and Brazilian berry extract

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Introduction

The development of cosmetic formulations with moisturizing and film-forming properties has been very important to help the keep skin physiology and protection. The application of natural extracts in cosmetic products, which present a rich composition in polyphenols, polysaccharides, proteins, minerals, vitamins can improve the efficacy of the products in the improvement of skin hydration and protection against skin changes resulting from the exposome. Among the natural extracts, the Brazilian Berry (*Plinia cauliflora*) from Brazilian biodiversity has potential for application in cosmetic products because it presents a rich composition in polyphenols, which confers antioxidant potential to the fruit extract, and the synergism of the compounds could improve the skin hydration and homeostasis. In this context, the aim of the study was to develop and evaluate the physical-mechanical, film-forming and sensorial properties of a cosmetic formulation containing Brazilian berry and Tara gum.

Materials & Methods

Results & Discussion

The texture parameters of the F2 formulation decreases the firmness and cohesiveness parameter in 15% and 6.7%, respectively, when comparing the vehicle (F1), showing a significant difference ($p<0.05$). The work of shear significantly ($p<0.05$) decreased when Brazilian Berry extract was added to the formulation, which can be correlated to the improvement of spreadability and touch sensation described in the sensory analysis.
The RCM imaging analysis showed that the Tara gum presented visible film-forming properties due to the increase of brightness on the skin surface and a significant increase in hyperreflective pixels in the stratum corneum and interkeratinocites reflectance in the stratum granulosum (Figure 1).
In addition, a reduction of TEWL and an improvement of skin microrelief and hydration were observed after the application of a formulation containing Brazilian berry.

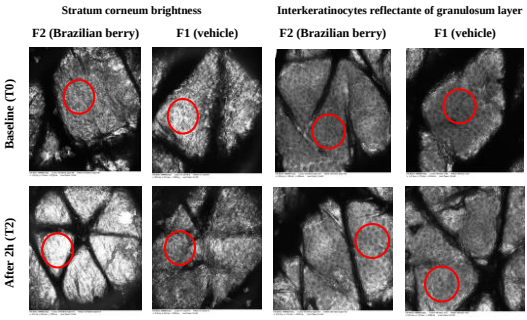

Figure 1. RCM images of *stratum corneum* brightness and interkeratinocytes reflectance of granulosum layer before (T0) and after two hours (T2) of application of the gel with Brazilian berry extract (F2) and vehicle (F1)

Regarding the perceived efficacy, most part of the study participants reported an improvement of skin hydration, a good spreadability of the formulation and pleasant touch sensation after application of the formulation with Brazilian berry - preference of 84% of the participants (Figure 2).

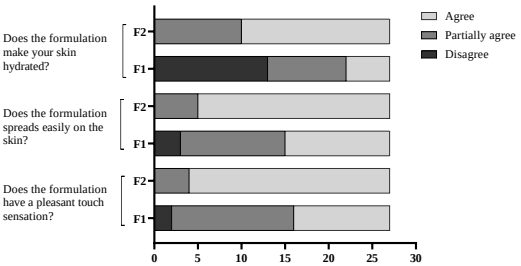

Figure 2. Perception of the efficacy of the formulations under study - gel containing Brazilian berry extract (F2) and gel vehicle (F1)

Conclusions

The use of ingredients obtained from natural sources to develop cosmetics helps obtain more innovative and effective products with good texture and sensory properties. Thus, the Brazilian berry extract can be suggested for application in multifunctional cosmetics for skin care and can add value to the product. In addition, the use of advanced imaging techniques such as Reflectance Confocal Microscopy is fundamental in order to scientifically prove the benefits of the cosmetics. Finally, the present study has an important contribution since it showed the benefits of a cosmetic product based on natural ingredients with film-forming properties for the skin protection and hydration using innovative evaluation methods.

References

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