

Development and clinical efficacy of a sunscreen containing *Spiraea ulmaria* extract

Mariane Kiyoto Moysés^{1*}; Patrícia Maria Berardo Gonçalves Maia Campos¹.

¹Faculdade de Ciências Farmacêuticas de Ribeirão Preto, Universidade de São Paulo.

*mariane.moyses@gmail.com

Introduction: In tropical countries, like Brazil, due to high temperatures and humidity, most of the population has oily skin, as well as being more intensely exposed to UV radiation from the sun, because of the geographical location. Therefore, the skin of Brazilian needs a high UV protection, include UV A and UV B protection, for the prevention of sunburn, free radicals, skin cancer and early aging. But, people with oily skin, due to excess sebum production, have difficulties in using products containing high content of oil, such as sunscreens with high SPF. Thus, this study aimed to develop a stable sunscreen with high UV protection and a nice touch, supplemented with extract of *Spiraea ulmaria*, which mainly consists of gallic acid and tannins and works in three ways to fight excess sebum: it inhibits the activity of the enzyme which amplifies the androgen signal responsible for hyper-seborrhea, contracts dilated pores and limits bacterial proliferation. **Objective:** To develop a sunscreen supplemented with extract of *Spiraea ulmaria*, as well as to evaluate the clinical efficacy and sensory properties of the formulation. **Methods:** The formulations were developed and subsequently subjected to preliminary tests of stability during 28 days. Thus, the formulation more stable contains bis-ethylhexymethoxyphenyl triazine, methylene bis-benzotriazolyl tetramethylphenol, octyl methoxycinnamate and titanium dioxide as UV filters, and Cyclomethicone, Acrylates/C10-30 Alkyl acrylate Crosspolymer, Sclerotium Gum, Behenyl Alcohol, Polyglyceryl-10 Pentastearate and Sodium stearyl Lactylate. This sunscreen, supplemented or not with 3% of *Spiraea ulmaria* hydroalcoholic extract was applied on the 15 human volunteers' face skin to analysis of their effects by using biophysical and skin imaging techniques. Skin conditions were analysed before and after 2 and 4 hours (immediate effects) of a single application of the formulations with and without active under study, in terms of the water content of the stratum corneum (Corneometer CM 825 ®), the transepidermal water loss (Tewameter TM ® 210), the content of sebum (Sebumeter ® SM 810) and the skin microrelief (VC Visioscan ® 98). Thereafter the clinical assessments, the cosmetic formulations were submitted to sensory analysis by volunteers. **Results:** The formulations showed a good sensorial according to the volunteers, but the formulation with the extract presented the best ratings about to the feeling of oiliness and spreading properties. In the study of immediate effects, the sunscreen containing *Spiraea ulmaria* extract controlled the oiliness of the skin compared with the control region (without formulation). **Conclusion:** The sunscreen with the extract of *Spiraea ulmaria* showed a high degree of acceptance for oily skin people, which ensures high UV protection and control of the sebum content of the skin.

Keywords: oily skin, sunscreen, development, *Spiraea ulmaria*, clinical efficacy.

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