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## PHOTOPROTECTIVE ACTIVITY AND HPLC-ESI-IT-MS PROFILE OF FLAVONOIDS FROM THE BARKS OF HYMENAEA MARTIANA HAYNE: DEVELOPMENT OF FORMULATIONS WITH THE HYDROALCOHOLIC EXTRACT

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### ABSTRACT

The development and production of photoprotective products has been highly focused on natural ingredients, and in addition to sunburn and skin cancer, exposure to uv radiation is also related to early cutaneous aging, which can be related to the production of reactive oxygen species (ros), which are extremely damaging to tissues. *Hymenaea martiana* hayne, popularly known in the brazilian northeast as "jatobá", had the flavonoids been related to its pharmacological activities, and astilbin was pointed as the major component of the bark's extract. A flavonoid profile of this specie was not developed yet. Goals: this work aimed to perform a phytochemical study, with the characterization of hplc-ms-esi-it flavonoids from *hymenaea martiana* bark extract, and to develop a cosmetic formulation with photoprotective action. Methodology: the dried and pulverized barks were submitted to extraction with absolute ethanol, concentrated and fractionated. Total phenolic compounds, total flavonoids, sun protection factor (spf) and antioxidant activity were determined. A hplc-esi-it profile of flavonoids was developed. Photoprotective gel formulations were developed with the extract of *h. Martiana*. results: the highest content of phenolic compounds was found in crude extract, followed by the ethyl acetate fraction. The total flavonoid content in the samples demonstrate that these are the major phenolic compounds. The crude extract showed significant antioxidant and photoprotective activity, with a strong correlation between the activities and the content of phenolic compounds. A flavonoid profile was developed, and bioactive flavonoids reported for the first

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time in the species were identified. In the development of the formulations, it was evidenced that the addition of the crude extract to the chemical filter increased the antioxidant activity and fps, suggesting a synergistic effect in the photoprotection. Formulation f4 was considered a promising product. Conclusion: these results show the cosmetic potential of *hymenaea martiana*, thus justifying the development of a cosmetic formulation with photoprotective activity.

**Keyword:** Flavonoids; *Hymenaea martiana*; HPLC-ESI-IT-MS; Photoprotective activity Sun Protection Factor.