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# ANTI-AGING, ANTIGLYCANT, ANTIPHOTOMUTAGENIC AND PHOTOPROTECTIVE POTENTIAL OF JURUBATIBA SANDBANK (RJ) PLANTS.

*Leilane Falcão de Freitas*[1*], *Victor de Azevedo Neres*[1], *Alessandra da Silva Correia*[1], *Carla Monteiro Leal*[1], *Patrícia H. B. de Moura*[1], *Raiane Rosales Diniz*[3], *Michelle Frazão Muzitano*[2], *Maria Isabel Sampaio dos Santos*[1], *Ivana C. R. Leal*[1] falcao85@ufrj.br

[1]*Laboratório de Produtos Naturais e Ensaios Biológicos (LaProNEB), Faculdade de Farmácia, Universidade Federal do Rio de Janeiro;* [2]*Laboratório de Produtos Bioativos (LPBio), Instituto de Ciências Farmacêuticas, Centro Multidisciplinar UFRJ – Macaé;* [3]*Insitituto de Ciências Farmacêuticas, Centro Multidisciplinar UFRJ – Macaé, Rio de Janeiro, Brazil*

Skin aging may be associated with factors as senescence, sun exposure and high-sugar diet. Prolonged skin exposure to UV rays can increase the production of reactive oxygen species, damaging biomolecules, resulting in wrinkles. Several plant extracts have anti-aging properties, with emphasis on those rich in phenolics, due to their antioxidant and metalloenzyme-inhibiting capabilities. Therefore, this work aimed to investigate extracts from Jurubatiba Sandbank species, as follows: *Ocotea notata* ***(ON)***, *Humiria balsamifera* ***(HB)***, *Tapirira guianensis* ***(TG)*** and *Tocoyena bullata* ***(TB)***, regarding their chemical profile BY UHPLC-DAD-MS/MS. In addition, there were investigated the anti-aging, antiglycant, photoprotection and antiphotomutagenic potentials of the extracts in *in vitro* models. The antioxidant capacity was evaluated by the ABTS, DPPH, and FRAP methodologies. Enzyme inhibition has been analyzed with the enzymes tyrosinase, collagenase and elastase, and the antiglycant activity, by fluorimetry (adapted BSA-glucose model). Photoprotective and antiphotomutagenic activities were evaluated by irradiating *S. cerevisiae yno1* strain with simulated sunlight. Among the antioxidant assays, ***ON*** stood out for presenting free radical scavenging capacity by the ABTS ($EC_{50}$ = 2.62 ± 1.21 µg/mL) and DPPH ($EC_{50}$ = 8.23 ± 1.55 µg/mL) radicals scavenging capacities compared to the standard rutin ($EC_{50}$ = 4.65 ± 0.61 µg/mL and $EC_{50}$ = 6.90 ± 1.07 µg/mL, respectively). The ***ON*** extract presented 63.88% inhibition activity of tyrosinase at 20 µg/mL, showing to be promised in comparison to the kojic acid (20 µg/mL), with 93.48% inhibition. For the antiglycation assay, the four species showed promising results, with emphasis on ***ON*** (84.97%, at 0,5% after 28 days incubation). In addition, ***ON*** showed the presence of the flavonoid procianidin type B (*m/z* 577) as major metabolite, which are already recognized for their antioxidant capacity, among other minor compounds such as avicularin (*m/z* 433). *In vitro* assay with *S. cerevisiae yno1* strain showed that ***ON*** increased the LD37 from 2.5 kJ UVB (control) to 4.0 kJ UVB (treatment), demonstrating its photoprotective potential. Additionally, in the CanR mutant assay, ***ON*** reduced photomutagenicity by 2.4-fold (1469 vs. 3878 mutants), confirming its antiphotomutagenic activity. The results are promising, with emphasis on ***ON***, which potential antioxidant, antiglycation, antiphotomutagenic and photoprotective effects. The extracts will also be investigated for activity against elastase and collagenase for future development of topical formulations.

***Keywords:*** *Anti-aging, Photoprotection, Antiphotomutagenic, Antiglycants, Natural Products, Restinga de Jurubatiba, Ocotea notata.*

References: 1) GENG, R. et al. Nutrients. 2021, v. 13, n. 5, p. 1691. 2)CABRAL-PACHECO, G. A. et al. International journal of molecular sciences. 2020, v. 21, n. 24, p. 9739. 3)DINIZ, R. R. et al. Journal of Photochemistry and Photobiology B: Biology. 2019, v. 198, p. 111584.