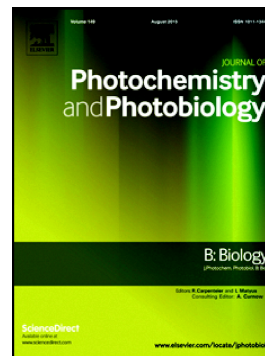


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The photoprotective and anti-inflammatory activity of red propolis extract in rats

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ABSTRACT

The negative effects triggered by ultraviolet radiation, such as premature aging and carcinogenesis, have motivated several studies on photoprotection. Recent strategies for photoprotection have included the incorporation of natural antioxidant and anti-inflammatory compounds, such as flavonoids, into sunscreens and the oral administration of natural antioxidant extracts. Brazilian Red propolis extract contains isoflavonoids with antioxidant and anti-inflammatory activities. Here, we investigate the photoprotective effects of orally- or topically-administered formulations containing hydroalcoholic extract of red propolis (HERP) in a rodent model. HERP showed markers identified as: daidzein (4.68 µg/mL), formononetin (31.81 µg/mL) and biochanin A (9.58 µg/mL). A fourth peak was found in the chromatogram but was not identified. The antioxidant activity of HERP was calculated to be 3.07 mmol Trolox/g and 2.13 mmol Trolox/g, respectively. Topical HERP exerted a protective action against UVB radiation, which was similar to that exerted by oxybenzone filter. Oral HERP as an adjuvant treatment did not increase sunburn protection. However, the oral administration of HERP presented chemoprotective and anti-inflammatory activity ($p < 0.05$) similar or better than *Polypodium leucotomos* oral treatment (positive control). In conclusion, topical administration of HERP has photoprotective activity in a murine model and the mechanisms of protection can be related to the antioxidant and anti-inflammatory characteristics of HERP compounds.

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