B-orcinol despised from hypotrachyna caraccencis, lichen from the paramo ecosystem and their free radical scavenging activity

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Abstract

The new hypotrachynin A (1) and B (2) along with the know (+)-(9b-R)- usnic (3) and methylstictic acids (4) were isolated for the first time from Hypotrachyna caraccensis. Additionally, their potency and reactivity as DPPH• scavengers was determined by a kinetic study calculating their EC50 and second-order rate constants (k2). Considering 1-4 could be dermatological agents, their n-octanol water partition coefficients and standard molar Gibbs free energies of transfer were calculated as a estimation of their lipophilicity and skin penetration. Compounds 1,3 and 4 were less potent than 2 (EC50=3.3014; 1.7540; 2.6652 vs 0.7376) as DPPH• scavengers, in turn 4, was the most reactive with a comparable k2 to the antioxidant BHT (k2= (232 ⍰ 24) X 10-2 vs (564 ⍰ 12) X 10-2 M-1 s-1, respectively). Since 2 and4 had an optimal lipophilicity and permeability for skin penetration, they might bedeveloped as topical ingredients to prevent oxidative damage.

Key words: Lichen, antioxidant, scavengers, kinetic, lipophilicity

Biography

Angela Leal, I am from Bogotá – Colombia and I did my Master degree in Chemical Sciences at Universidad Nacional de Colombia. I worked and study on the determination of antioxidant biological activity of secondary isolated metabolites of a lichen. My knowledge and experience in the development of analytical techniques in isolation, NMR spectroscopy and antioxidant trials to determination of biological activities is basic, since I worked in three laboratories of the Universidad Nacional de Colombia: the first was Phytochemical Research Group (Department of Pharmaceutical Chemistry), the others were Marine Natural Products Research and Physicochemical, and Biological Research of Colombian lichens.

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