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Anti-Inflammatory Activity of Topical Anthocyanins by Complexation and Niosomal Encapsulation

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Abstract : Anthocyanins are natural pigments with effective UV protection but their topical use could be limited due to their physicochemical characteristics. An attempt to overcome such limitations by complexation of 2 major anthocyanin-rich sources, C. ternatea, and Z. mays, for investigation on potential use as topical anti-inflammatory. Cell studies indicate no cytotoxicity of the anthocyanin complex (AC) up to 1 mg/ml tested in HaCaT and human forehead fibroblasts by MTT. Croton oil-induced ear edema in Wistar rats suggests an effective dose of 5 mg/cm2 of AC as a topical anti-inflammatory in comparison to 0.5 mg/cm2 of fluocinolone acetonide. Niosomal encapsulation of the AC significantly prolonged the anti-inflammatory activity particularly at 8 h after topical application ($p = 0.0001$). The AC was not cytotoxic and its anti-inflammatory and activity was dose-dependent and prolonged by niosomal encapsulation. It has also shown to promote collagen type 1 production in cell culture. Thus, AC could be a potential candidate for topical anti-inflammatory agent from natural resources.

Keywords : anthocyanin complex, ear edema, inflammation, niosomes, skin
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