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Butanolic fraction of *Byrsonima verbascifolia* leaves inhibits TNF- α and PGE₂ production: A possible mechanism involved in the anti-inflammatory activity

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Byrsonima verbascifolia (L) DC (Malpighiaceae), popularly known as ‘murici’ is a plant that grows in the Brazilian Cerrado. The leaves of this species are widely used in folk medicine in the form of infusion to treat inflammatory conditions. The present study aims to evaluate the *in vivo* anti-inflammatory activity of the butanolic fraction of *B. verbascifolia* leaves (BvBF) in order to contribute to validation of the traditional use. The effect of the BvBF was assessed in carrageenan-induced paw edema in mice, an acute inflammation experimental model. Their chemical composition was characterized using liquid chromatography coupled to diode array detector and mass spectrometry (LC-DAD-MS) and matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS). All doses of BvBF tested (12.50, 25 and 50 mg/kg, intraperitoneally-i.p.) clearly demonstrate significant antiedematogenic activity ($p < 0.001$). The suppression of local edema formation by the minor dose was $84.21 \pm 2.236\%$ and $53.84 \pm 2.582\%$, 2 and 4 hours after the inflammatory stimulus, respectively. Moreover, BvBF (12.50 mg/kg, i.p.) also inhibited tumor necrosis factor alpha (TNF- α) and prostaglandin E2 (PGE₂) production, as well as polymorphonuclear (PMN) leucocyte recruitment to the mice footpad. Phytochemical analysis revealed the presence of the 45 compounds, including proanthocyanidins (condensed tannins), phenolic acids, flavonoids (flavones and flavonols) and other compounds. In summary, it is possible to propose that the mechanism of the anti-inflammatory action in the BvBF is linked to the decrease of pro-inflammatory mediators levels such as TNF- α and PGE₂, which leads to the inhibition of the PMN leucocyte migration.

Biography

Adriana Cristina Soares de Souza has completed her Master (1999) and PhD (2004) studies from Federal University of Minas Gerais, Brazil. She was a Professor of Clinical Pharmacology at the University Center Newton Paiva from 1999 to 2009. Currently, she is teaching Pharmacology at the Federal University of São João del-Rei, Brazil. She has published 17 papers in reputed journals and has been serving as a Reviewer in the health journals. She has experience in pharmacology with emphasis on pharmacology of pain and inflammation and clinical pharmacology.

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