In Vitro Anti-inflammatory Activity of Bidens biternata(Lour.) Merr. & Sheriff – a Wild Medicinal Plant of Waynadu District of Kerala

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ABSTRACT

Bidens biternata (Lour.) Merr. & Sheriff, of the family Asteraceae, is an erect annual herb, commonly found in cultivated areas in Western Ghats regions of Kerala state. It is used as a leafy vegetable by Paniya, Chetti, Kani and Kattunaayika tribes of Waynadu Districts in Kerala and also to cure hepatitis, inflammation, cold, cough, dysentery, asthma etc. In the present study, crude methanol extract and isolated bioactive compound of B. biternata leaves was analyzed for its in vitro anti-inflammatory activity. The anti-inflammatory activity was evaluated by cyclooxygenase (COX-2) and 5-lipoxygenase (5-LOX) inhibitory assays. In COX-2 inhibitory assay of crude methanolic leaf extract, the percentage of inhibition was found to be 36.71%, 63.92% and 87.35% for sample concentration 100 µg/ml, 500 µg/ml and 1000 µg/ml respectively. In the 5-LOX percentage of inhibition was found to be 35.64%, 61.76% and 85.95%. Column chromatography and Thin Layer Chromatography were used for separation of compounds followed by UV, IR, mass and NMR spectroscopic analysis for the characterization of phytochemical from methanolic leaf extract of B.biternata. The compound isolated from methanolic leaf extract of B. biternata, which is identified as, quercetin showed higher inhibitory effects in both COX (40.36%, 72.61% and 90.73%) and LOX (39.25%, 70.14% and 89.68%) than crude extract. COX-2 inhibition assay of isolated compound quercetin showed high activity than 5-LOX assay. The results revealed that the isolated compound quercetin (3, 3', 4', 5, 7-pentahydroxy flavones) of B. biternata possessed high anti-inflammatory activity, so could be used as an effective therapeutic agent against inflammatory disorders.

KEYWORDS

5-LOX, Anti-inflammatory activity, Bidens biternata, COX-2, Western Ghats.