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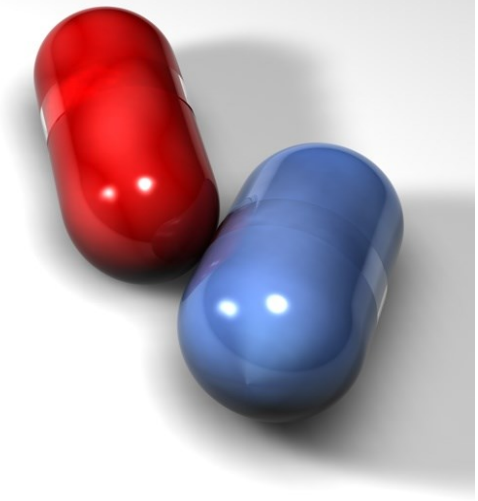

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Letter to the Editor

Evaluation of lipoxygenase inhibition of *Jatropha gossypifolia*, a medicinal plant from Pakistan

Sir,

Inflammation is a common process by which the destruction of cells leading to various unrelated disorders like, cancer, diabetes, Alzheimer's disease, Parkinson's disease, heart diseases, stroke, arthritis, multiple sclerosis, etc can be precede. Inflammation persists when immune system is continuously activated and this chronic inflammation leads to continued destruction of cells which results to chronic diseases (Arumugam et al., 2011). Inflammatory mediators are soluble, many of which may be regarded as local hormones and play a key role in the orchestratrion of the inflammatory response. These inflammatory mediators are mainly tissue products such as histamine, serotonin, prostanoids, leukotrienes, platelet activating factor, bradykinin, neuropeptides, cytokines, lipoxins, chemokine and interferons. Lipoxins are the products of lipoxygenases and chemically conjugated trihydroxyl tetracenes (Mayes and Botham, 2003).

Lipoxygenases (LOs) are a family of iron containing enzymes that catalyse the dioxygenation of polyunsaturated fatty acids in lipids containing a *cis,cis*-1,4-pentadiene structure. They convert arachidonic acid (a component of membrane phospholipids) into leukotrienes (pro-inflammatory mediators) which are a group of highly potent molecules possessing diverse biological actions (Samuelsson, 1983).

Jatropha gossypifolia (Linn) belonging to the family Euphorbiaceae is a perennial, erect shrub or small tree usually about 2.5 m tall but which can exceed 4 m in some areas. Seeds are emetic, purgative, and used for body pain (Misra and Misra, 2010). Ethnobotanical uses of *J. gossypifolia* reported for cancer, diarrhea, dysentery, skin diseases (leprosy), arthritis, ulcer, gum infections and wound healing (Dash and Pashay, 2006). The aim of this study was to investigate the presence of possible lipoxygenase inhibitors in different extracts of *J. gossypifolia* plant extracts. Selection of the *J. gossypifolia* plant screened in this study was based on its limited or no work on such aspects.

The leaves were shade dried and powered. The powdered samples were extracted sequentially with hexane, dichloromethane, ethyl acetate, butanol and water at 1:10 (w/v) concentrations by using soxhlet apparatus. The extracts were filtered through Whatman No. 1 filter paper and the filtrate collected. The filtrates were concentrated by rotary evaporator, stored at 4°C and used for further studies. Lipoxygenase inhibition of all extracts was carried out according to method described by Baylac and Racine (2010) and the percentage inhibition (%) was calculated.

Among all the tested extracts dichloromethane, butanol and ethyl acetate fractions shows the maximum lipoxygenase inhibition while hexane and crude methanol fraction shows minimum activity. The dichloromethane extract exhibited maximum inhibition of 92.0 ± 0.2

Table I

Lipoxygenase inhibitory activity of *J. gossypifolia*

J. gossypifolia	Conc./well (mm)	LOX inhibition (%)	LOX IC_{50} (µg)
Crude methanol extract	0.5	70.9 ± 0.3	162.5 ± 0.2
n-Hexane extract	0.5	36.1 ± 0.3	Nil
Dichloromethane extract	0.5	92.0 ± 0.2	57.1 ± 0.2
Ethyl acetate extract	0.5	90.2 ± 0.2	58.5 ± 0.3
Butanol extract	0.5	91.9 ± 0.8	59.4 ± 0.3
Baicalein	0.5 mM	93.8 ± 1.3	22.4 ± 1.3

whereas control baicalein exhibited 93.8 ± 1.3 (Table I). To the best of our knowledge this is the first report on lipoxygenase inhibitory of *J. gossypifolia*.

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