Analgesic and Anti-inflammatory Activity of *Ficus glomerata* in Experimental Animal Models

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**ABSTRACT**

The anti-inflammatory and analgesic activity of various extracts of *Ficus glomerata* Roxb. were evaluated in experimental animals. We have determined the anti-inflammatory and analgesic activity of various extracts of the dried fruits of *Ficus glomerata* by oral administration at doses of 200 and 400 mg/kg of body weight to healthy animals. The extracts were studied for their anti-inflammatory activity in carageenan induced hind paw edema in rats and the paw volume was measured plethysmometrically after 3 hours of injection. The extracts were also evaluated for analgesic activity using Eddy’s hot plate method in mice. The extracts of *Ficus glomerata* significantly reduced carageenan-induced hind paw edema in rats. The extracts showed significant analgesic activity, evidenced by increase in the reaction time by the Eddy’s hot plate method in mice. The extracts showed a similar anti-inflammatory and analgesic effect compared to standard drugs indomethacin and diclofenac sodium, respectively. The present results indicated that the ethanolic extract of *Ficus glomerata* exhibited significantly more activity than other extracts in reducing the pain and inflammation in experimental models.

**KEYWORDS:** *Ficus glomerata*; anti-inflammatory; analgesic; pain; paw edema; writhing.

**Introduction**

The history of herbal medicines is as old as human civilization. Nature has provided a complete store house of remedies to cure all ailments of mankind. The knowledge of drugs has accumulated over thousands of years as a result of man’s inquisitive nature so that today we possess many effective means of ensuring health care (Kokate, 2008). In general natural drug substances offer four vital and appreciable roles in the modern system of medicine, thereby adequately justifying their legitimate presence in the prevailing therapeutic arsenal namely: serve as extremely useful natural drugs, provide basic compounds affording less toxic and more effective drug molecules, allow exploration of biologically active prototypes towards newer and better synthetic drugs, and allow modification of inactive natural products by suitable biological/chemical means into potent drugs (Kar, 2003).

In recent times, focus on plant research has increased all over the world and a large body of evidence has been collected to show the immense potential of medicinal plants used in various traditional systems. Inflammation is the response of living tissues to injury; acute and chronic inflammations are a complex array of enzyme activation, mediator release, extravasations of fluid, cell migration, tissue breakdown and repair. Anti-inflammatory agents exert their effects through a spectrum of different modes of action (Shikha et al., 2010). Pain is a sensorial modality which in many cases represents the only symptom for the diagnosis of several diseases. It often has a protective function throughout history and man has used several therapies for the management of pain. Medicinal herbs are highlighted due to their wide use and less side effects (Mate et al., 2008).

The genus *Ficus*, commonly known as figs, belongs to the family Moraceae (The Wealth of India, 2002) and constitutes an important group of trees with immense medicinal value. There are over 600 species of *Ficus*, of which four species, viz. *Ficus racemosa* Linn. (Cluster fig), *Ficus microcarpa* Linn. f. (Chinese or Malayan banyan), *Ficus religiosa* Linn. (Peepal tree or Sacred fig) and *Ficus benghalensis* Linn (Banyan tree) are medicinally important (Gracy et al., 2011). *Ficus glomerata* (syn. *Ficus racemosa*) is a widely cultivated plant all over India. It has been reported to have many medicinal properties (Nadkarni, 2002). The roots are used as a medicine against hydrophobia. Its fruits are effective against gastric ulcer (Rao et al., 2008), leprosy, diseases of the blood, fatigue, bleeding nose and cough. Its bark is helpful against asthma and its leaves are used against bronchitis and as anti-fungal agent (Vonshak

**ABBREVIATIONS:** PE = petroleum ether; CH = chloroform; AC = acetone; ET = ethanol; AQ = aqueous; PG = prostaglandin.