

# ANTI-INFLAMMATORY ACTIVITY OF *COMMELINA BENGHALENSIS* Linn., LEAF EXTRACTS.

Celestin Baboo R.V,\* Dhandapani B and Velmani G  
A.M. Reddy Memorial College of Pharmacy, Narasaraopet, Guntur (A.P)

## ABSTRACT

Petroleum ether, benzene, chloroform, carbon tetrachloride and ethanol extracts of *Commelina benghalensis* Linn, leaves were investigated for anti-inflammatory activity in albino rats by carrageenan induced rat paw oedema method, using diclofenac sodium as the reference standard. The results revealed that, the extracts showed anti-inflammatory activity at a dose of 500mg/Kg body weight. Ethanol extract was found to be more significant when compared to the other extracts.

## 1. INTRODUCTION

*Commelina benghalensis* Linn (*C. benghalensis*) is an herb, which belongs to the family Commelinaceae. It is an erect, rarely climbing; very rarely a shrub found growing as a weed in moist regions of tropical Asia, Africa, Ceylon, and China and throughout India. The plant generally attains a height of about 60-90cm, flowering and fruiting takes place during the winter season, the flowers are bluish violet in colour, having 10-15mm in diameter. It was reported to be effective for night blindness, cataract, conjunctivitis, eye sores and improvement of eye sight. Also used as emollient, demulcent, refrigerant, laxative and as a therapeutic measure in leprosy (Krishnan Marg KS, 2000; Nadkarni KM, 2005; The Wealth Of India, 2004)

## 2. MATERIALS AND METHODS

### Plant collection and Identification

*C. benghalensis* plants were collected from the moist regions of Madurai district, Tamil Nadu. All the plants collected were verified, identified and authenticated at the Department of Botany, American college, Madurai.

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\*For correspondence:

Celestin Baboo R.V.  
Department of Pharmacognosy,  
A.M. Reddy Memorial College of Pharmacy,  
Petlurivaripalem Post, Narasaraopet (Mdl),  
Guntur District, A.P.- 522601.  
E-mail: [daphniebaboo@yahoo.co.in](mailto:daphniebaboo@yahoo.co.in).  
Mobile : 09704896697.

### Preparation of the extract

The leaves were separated from the collected plants and were shade dried, coarsely powdered and successively extracted with petroleum ether, benzene, chloroform, carbon tetrachloride and ethanol in a soxhlet apparatus. The extracts were further concentrated using an evaporator and dried in a desiccator.

### Animals

Adult Wistar albino rats weighing 150-200g. were purchased. They were acclimatised to the laboratory conditions with a constant temperature maintained at 25±2°C, 12h. Light/12h darkness cycle and standard humidity of 45-55%. The animals were fed with standard diet and water available ad libitum throughout the experimental period

### Anti-inflammatory activity

The extracts were screened for anti-inflammatory activity by carrageenan induced rat paw oedema method, using a plethysmograph. The animals were starved overnight and divided into seven groups, each consisting of six. Each group was administered the preparations orally. Group I (control) 1% Sodium carboxy methyl cellulose suspension [SCMCS], Group II (standard) 1% SCMCS containing 100mg/Kg body weight of diclofenac sodium and Group III-VII (test) 1% SCMCS containing 500 mg/Kg body weight of petroleum ether, benzene, chloroform, carbon tetrachloride and ethanol extracts. After one hour 0.1ml of 1% carrageenan in 0.9% sodium chloride was administered into the sub plantar surface of the right hind paw of each rat. After the injection of the phlogistic agent, the paw volumes were measured. The percentage

inhibition of oedema was calculated by using the following formula,

$$\% \text{ Inhibition} = \frac{V_c - V_t}{V_c} \times 100$$

where,

**V<sub>c</sub>**- Oedema volume of control.

**V<sub>t</sub>**- Oedema volume of test.

No adverse effect or mortality was detected in rats for any of the extracts during the experiment (Kulkarni SK, 2005; Winter CA, 1962).

### 3. RESULTS AND DISCUSSION

The results of the anti-inflammatory effects of different *C. benghalensis* leaf extracts after four hours are shown in Table 1. as compared to the standard anti-inflammatory drug, diclofenac sodium. Different extracts showed different levels of oedema inhibition. The standard drug diclofenac sodium showed a 64% reduction while the ethanol extract showed a 48% inhibition, suggesting indeed the leaf extracts can be used as anti-inflammatory agents, although the mechanism of action still remains to be identified. The results suggest that this plant may be of commercial importance.

#### OBSERVATION

**Table 1: Anti-inflammatory activity of *C. benghalensis* Linn., leaf extracts Vs Diclofenac sodium**

S. No.	Treatment	Dose (mg/Kg)	Mean paw volume (ml) Fourth hour	%Oedema inhibition
1	Control	-	0.75±0.10	-
2	Diclofenac sodium	100	0.27±0.07	64
3	Petroleum ether ext.	500	0.66±0.10	12
4	Benzene ext.	500	0.61±0.10	18.66
5	Chloroform ext.	500	0.60±0.02	20
6	Carbon tetrachloride ext.	500	0.56±0.04	25.33
7	Ethanol ext.	500	0.39±0.03	48

Values expressed as mean ± SEM, n=6 in each group

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