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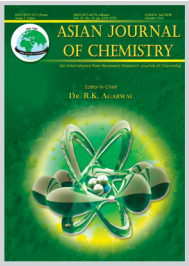

NOTE

Antiinflammatory Activity of *Albizia Lebbek* (L.) Benth. Stem Bark Extract

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Albizia lebbek stem bark powder was extracted with petroleum ether, chloroform and alcohol by using soxhlet apparatus. All the extracts were screened for the antiinflammatory activity by measuring the reduction in carrageenan induced hind paw edema. The potency of each extract was compared with each other and standard drug diclofenac sodium for antiinflammatory activity. The maximum antiinflammatory activity was observed in petroleum extract followed by chloroform extract.

Key Words: *Albizia lebbek*, Antiinflammatory activity.

Albizia lebbek is also known as Siris. It belongs to the family memosaceae. *Albizia lebbek* is a medium to large sized unarmed deciduous tree about 20 m in height with an umbrella shaped crown and grey to dark brown rough irregularly cracked bark, found throughout India. The bark yields tannins of condensed type *viz* D-catechin, isomers of leucocyanidine and melacacidin and lebbecacidin. It also gives friedelin and β-isosterol. This is used as expectorant, antiinflammatory and in treatment of bites and stings from venomous animals[1].

Collection, identification and powdering of plant material: The stem bark of plant material was collected from the campus of Kurukshetra University, Kurukshetra, India in the month of september. The species for the proposed plant was identified as *Albizia lebbek (L.) Benth*. The bark pieces were washed and cleaned, air dried in shade, powdered in grinder and sieved through sieve of mesh size no-40.

Preparation of extracts: The bark were dried at room temperature (25-30 ºC) for 15 days and powdered. 160 g powder was extracted with petroleum ether, chloroform and ethanol. Filtrate obtained after Soxhlet extraction was dried by distillation and last traces of solvents were removed under reduced pressure with the help of rotary evaporator. The obtained crude extract was collected and preserved in airtight glass container at 4 to 8 ºC. The extracts were tested for various phytochemical constituents and screened for their antiinflammatory activity[2,3].

Animal housing: Animals were maintained under standard conditions of temperature (25 ± 5 ºC) and relative humidity (55 ± 10 %) and 12/12 h light/dark cycle. They were housed in standard polypropylene cages with wire mesh top and husk bedding.

All the experimental procedures and protocols used in the study were reviewed by the Institutional Animal Ethics Committee (Register Number: 536/02/a/CPCSEA) and were in accordance with the guidelines of the CPCSEA, Ministry of Forest and Environment, Government of India.

Antiinflammatory activity

Carrageenan-induced edema: Eight groups of animals were used for this methods. Each group of rats include six wistar albino rat and paw edema was induced by injecting 0.1 mL of 1 % Carrageenan in physiological saline into the sub planter tissues of the left hind paw of each rat. The different extracts, each with two doses 250 and 500 mg/kg were administered orally 0.5 h prior to Carrageenan administration. The paw volume was measured at 1, 2 and 3 h by the mercury displacement method using a plethysmograph. The percentage inhibition of paw volume in drug treated group was compared with the control group. Diclofenac sodium (5 mg/kg) was used as reference standard[4-7].

Cotton pellet induced granuloma: Wistar albino rats (170 -200 g) of either sex were divided into eight groups of six animals in each group. Cotton pellets weighing 30 ± 1 mg were autoclaved and implanted subcutaneously into both sides of the groin region of each rat[4], group VII served as control and received the vehicle. The alcoholic, petroleum ether and

TABLE-1
ANTIINFLAMMATORY ACTIVITIES OF VARIOUS EXTRACTS BY CARRAGEENAN PAW EDEMA METHOD

Extract dose (mg/kg)	Paw volume (mean ± SEM)	Paw volume (mean ± SEM)		
		1 h	2 h	3 h
Alcoholic extract (250)	1.18 ± 0.02	1.65 ± 0.16	1.58 ± 0.12*	1.55 ± 0.13*
Alcoholic extract (500)	1.20 ± 0.01	1.61 ± 0.18**	1.51 ± 0.13*	1.48 ± 0.13*
Petroleum ether extract (250)	1.19 ± 0.03	1.68 ± 0.08	1.55 ± 0.12*	1.57 ± 0.09*
Petroleum ether extract (500)	1.17 ± 0.03	1.44 ± 0.02*	1.33 ± 0.12*	1.42 ± 0.36*
Chloroform extract (250)	1.18 ± 0.03	1.73 ± 0.13	1.63 ± 0.14	1.52 ± 0.13*
Chloroform extract (500)	1.20 ± 0.02	1.60 ± 0.15**	1.57 ± 0.21*	1.44 ± 0.12*
Control	1.21 ± 0.02	1.71 ± 0.15	2.37 ± 0.13	2.15 ± 0.13
DCLO (5)	1.19 ± 0.02	1.60 ± 0.23*	1.23 ± 0.15*	1.25 ± 0.21*

(*) = P< 0.01, (**) = P < 0.05, DCLO: Diclofenac as standard drug

TABLE-2
ANTIINFLAMMATORY ACTIVITY OF VARIOUS EXTRACTS BY COTTON PELLET METHOD

Extract dose (mg/kg)	Wt. of moist cotton pellet (mg)	Inhibition (%)	Wt. of dry cotton pellet (mg)	Inhibition (%)
Alcoholic extract (250)	152.32 ± 10.9	21.61	33.21 ± 1.1	18.22
Alcoholic extract (500)	147.27 ± 15.6*	24.21	30.18 ± 0.9*	25.68
Petroleum ether extract (250)	132.11 ± 11.2*	32.01	27.22 ± 0.8*	32.97
Petroleum ether extract (500)	126.71 ± 10.9*	34.79	25.13 ± 0.8*	38.11
Chloroform extract (250)	159.33 ± 14.3	18.01	33.19 ± 1.7	18.27
Chloroform extract (500)	155.17 ± 14.7**	20.15	32.23 ± 1.9**	20.63
Control	194.33 ± 11.6	—	40.61 ± 1.9	—
DCLO (5)	107.42 ± 8.7*	44.72	22.33 ± 0.7*	45.01

(*) = P< 0.01, (**) = P < 0.05, DCLO : Diclofenac as standard drug

chloroform extracts (250 and 500 mg/kg) were administered orally for group I, II, III, IV, V and VI animals for 7 days. Group VIII animals received diclofenac at a dose of 5 mg/kg orally for same period. On the 8th day the animals were sacrificed and the pellets together with the granuloma tissues were carefully removed, dried in an oven at 60 ºC, weighed and compared with control. Diclofenac sodium (5 mg/kg) was used as reference standard[8].

In paw edema method, petroleum extract was found to be most significant. The extract at doses 250 and 500 mg/kg, reduced the edema induced by carrageenan by 34.59 and 43.88 % respectively at 2 h, whereas the standard showed 48.10 % of inhibition as compared to the control group. Alcoholic extract inhibited the edema 27.90 % and 31.16 % at dose of 250 and 500 mg/kg respectively (Table-1). Chloroform extract inhibited the edema 29.30 % and 33.02 % at dose of 250 and 500 mg/kg respectively (Table-1).

The effects of extracts and diclofenac sodium, on the proliferative phase of inflammation were studied. In results, the antiproliferative effects of petroleum ether extract was found most significant at the dose of 250 and 500 mg/kg and were calculated as 32.01 and 34.79 % respectively (Table-2). Where as diclofenac sodium (5 mg/kg) was calculated as 44.72 % (P < 0.01) (Table-2). After drying the cotton pellet, the antiproliferative effects were calculated on the basis of dry weight pellets.

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