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LETTER TO THE EDITOR

ANTIINFLAMMATORY AND ACUTE TOXICITY STUDIES WITH THE LEAVES OF VINCA ROSEA LINN IN EXPERIMENTAL ANIMALS

Sir,

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Vinca rosea (fam. apocynaeceae) is a medicinal plant commonly grown in Indian gardens and a native of West Indies. Various parts of this plant have been reported to exert antidiabetic, hypotensive and antileukemic property (1–3). Significant hypoglycemic and antihyperglycemic activity of water soluble fraction of alcoholic extract of leaves of Vinca rosea in rats have already been reported by the authors (4). The present study was undertaken to investigate the possible effect of the same extract on inflammation induced by carrageenan on experimental animals along with its acute toxicity studies.

Water soluble fraction of alcoholic extract of leaves of Vinca rosea (V.R. extract) was procured by the method described earlier (4). Albino rats of Wistar strain of either sex weighng 100-150 g were used. Animals were kept on a standardised diet and water *ad libitum*. For experimental purpose animals were kept fasting overnight but allowed free access to water. The weight and sex matched animals were divided into three groups depending upon the treatment (Table I). In all the groups inflammation was produced by subplantar injection of 0.1 ml of freshly prepared 1 per cent suspension of carrageenan in normal saline in the right hind paw as described by Winter et al (5). Paw volume upto the articulation was measured plethysmometrically by the method of Chattopadhyay et al (6) at 0 h and 3 h after carrageenan injection.

Paw volume of the carrageenan injected hind paw in all the groups were measured. Percentage inhibition of the swelling in group II and III were compared with the control group (group I) which was taken as 100 per cent. The results were statistically analysed by Student's 't' test.

Acute toxicity studies :

Groups of albino mice (20-25 g) of both sexes were administered graded doses of V.R. extract intraperitoneally as detailed in Table II. After administration of the extract the animals were observed for gross effects continuously for 2 h and then at 6 hourly intervals upto 72 h. Gross behavioural, neurologic, autonomic and toxic effects were observed according to the method of Turner (7). Toxicological effect was observed in terms of mortality expressed as LD_{50} and for this number of animals dying during 24, 48 and 72 h was noted LD_{50} of the V.R. extract was calculated by the method of Litchfield and Wilcoxon (8).

Table I shows that V.R. extract possessed significant anti inflammatory activity against carrageenan induced rat hind paw oedema. The antiinflammatory activity was dose dependent; thus 50, 100, 200 and 400 mg/kg of V.R. extract exhibited 16.66, 37.03, 46.29 and 64.81 per cent inhibition of carrageenan induced rat hind paw oedema respectively. ED_{50} values of V.R. extract and phenylbutazone were found to be 260.00 and 53.50 mg/kg, i.p. respectively.

The extract did not have any effect in mice in doses up to 4000 mg/kg. However at higher doses death was preceded by anoxic convulsions and gasping resulting from respiratory failure. The 24 h LD_{50} of the V.R. extract in mice was found to be 4500 mg/kg. Delayed toxicity did not appear in mice and hence 48 and 72 h LD_{50} values were not found out (Table II).

Thus the significant antiinflammatory property and low toxicity of V.R. extract revealed that Vinca rosea needs to be further evaluated from the stand point of its antiinflammatory effect in therapy.

TABLE I : Effect of V. rosea leaf extract and phenylbutazone on carrageenan induced rat hind paw oedema.

Group	*Drug (mg/kg, ip.)*	*Increase in paw volume (ml) Mean±SE*	*% inhibition*	*P value*	*ED_{50} value (mg/kg, i.p.)*
I Control		0.54±0.01			
II V.R. extract	50	0.45±0.01	16.66	<0.01	260 (35.82, 339.20)
	100	0.34±0.01	37.03	<0.001	
	200	0.29±0.02	46.29	<0.001	
	400	0.19±0.01	64.81	<0.001	
III Phenylbutazone	20	0.38±0.02	29.62	<0.001	53.5 (24.70, 75.30)
	40	0.32±0.02	40.74	<0.001	
	60	0.25±0.01	53.70	<0.001	
	80	0.22±0.01	59.25	<0.001	

V.R. extract and phenylbutazone were injected 1 h before carrageenan injection ; n = 6.

TABLE II: Lethal effects of the alcoholic extract of Vinca rosea leaf in mice.

Species	*Dose (mg/kg, i.p.)*	*24 hour toxicity No. of animals*		*Percent mortality*
		Dead	*Total*	
Mice	4200	2	10	20
	4400	4	10	40
	4600	6	10	60
	4800	7	10	70

LD_{50} (mg/kg) 4500
with 95% confidence (4246.96, 4753.03) interval.

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