

Diuretic activity of *Alangium salvifolium* sub.sp.hexapetalum.

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Citation

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Abstract

Benzene and ethyl acetate extracts of *Alangium salvifolium* Sub.sp.Hexapetalum were prepared by hot continuous extraction technique using Soxhlet apparatus. Both extracts of *Alangium salvifolium* at 250 mg/kg were evaluated for diuretic activity. The study involved determination of total urine volume and Na⁺, K⁺ and Cl⁻ concentration in urine. Frusemide was included as standard. Both the extracts exhibited significant (P>0.05) diuretic activity. Ethyl acetate extract was found to be more active than benzene extracts.

INTRODUCTION

The plant *Alangium salvifolium* Sub.sp.Hexapetalum is a small tree or shrub, native to South India and Ceylon. It belongs to the family Alangiaceae. Its commonly known as Kodi Alangi in Tamil. All the parts Root, leaves, bark, fruits and seeds possessed significant therapeutic value. The plant contains Alangine A and B, alangicine, amrkindine, lamarckinine and emetine. Traditionally, its used for the treatment of skin disease, inflammation and hemorrhage and also used as purgative and antidote for several poisons¹⁻³. In the present study benzene and ethyl acetate extracts of *Alangium salvifolium* was evaluated for diuretic property.

MATERIALS AND METHODS

PLANT COLLECTION AND AUTHENTICATION

The plant material was collected in the Tirunelveli district, Tamilnadu, India. It was authenticated by Dr.V.Chelladurai, Govt. Research officer, Botany C.C.R.A.S. Govt. of India, (Retired), Tirunelveli. A voucher specimen has been kept in our laboratory (As) for future reference

PREPARATION OF EXTRACT

The root bark of *Alangium salvifolium* Sub.sp.Hexapetalum was dried under shade, coarsely powdered and passed through sieve no.22 to get particle of uniform size. Then extracted exhaustively with benzene and ethyl acetate using Soxhlet apparatus⁴. The solvent was removed under reduced pressure to obtain a solid mass. It was then preserved in a desiccators until further use.

ANIMALS

Albino rats of both sex (150-250g) were collected and housed under standard laboratory conditions. They were fed with standard rat feed and water ad libitum. The experimental protocols were approved by institutional animal ethics committee (Approval no. 509/02/C/CPCSEA/2002).

DIURETIC ACTIVITY

The method of Lipschitz et al,[5] was employed for the evaluation of diuretic activity. The animals were divided in to four groups (six in each) deprived of food and water for 18h prior to the experiment. On the day of experiment, the Group I animals received normal saline (20 ml/kg. p.o.), the Group II animals received Frusemide (20 mg/kg. i.p.), the Group III and IV animals received benzene and ethyl acetate extracts (250 mg/kg) respectively. Immediately after the administration, the animals were kept in metallic cages (two per cage) specially designed to separate urine and fecal matter and kept at room temperature (20±0.5 ° C). The total volume of urine was collected at the end of 24h. During this period no water and food was made available to the animals. The parameters accounted for ascertaining the diuretic activity are total volume of urine and the urine concentration of Na⁺, K⁺ and Cl⁻. The Na⁺ and K⁺ were measured by flame photometry[6] and Cl⁻ concentration was estimated by titration[7] with silver nitrate solution (N/50) using 3 drops of potassium chromate as indicator.

STATISTICAL ANALYSIS

The student ..t.. value was employed for statistical analysis.

All the values expressed are Mean \pm S.E.M. $P < 0.05$ (Compared to control) was considered significant.

RESULT AND DISCUSSION

The preliminary phytochemical analysis showed the presence of flavonoids, alkaloids and steroids in both benzene and ethyl acetate extracts. All these extracts at 250 mg/kg showed increase in urine volume and also the concentration of Na⁺, K⁺ and Cl⁻ in urine [Table 1]. From the present study, we concluded that the diuretic activity of *Alangium salvifolium* may be due to the presence of flavonoids in both the extracts.

Figure 1

Table 1: Diuretic activity of ethanol and chloroform extracts of flowers of Sub.sp.Hexapetalum

Treatment	Dose	Total urine volume (ml/24h)	Total Na+ (μ moles/kg)	Total K+ (μ moles/kg)	Total Cl- (μ moles/kg)
Normal saline	25 ml/kg.	21.5 \pm 0.67	86.27 \pm 0.26	82.52 \pm 0.56	750.92 \pm 0.59
Furosemide	20 mg/kg.	47.5 \pm 0.27*	170.45 \pm 0.92*	145.58 \pm 0.76*	3913.45 \pm 0.82*
Benzene extract	250 mg/kg.	27.9 \pm 0.54*	116.65 \pm 0.69*	112.83 \pm 0.96*	2546.59 \pm 0.67*
Ethyl acetate extract	250 mg/kg.	31.6 \pm 0.36*	135.76 \pm 0.86*	127.69 \pm 0.52*	3106.57 \pm 0.93*

Mean \pm S.E.M, n = 6, Student ‘‘t’’ test, * $P < 0.05$ (Compared to control) was considered significant

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