



EVALUATION OF ANTI-PYRETIC AND WOUNDHEALING ACTIVITIES OF ARGYREIA CUNEATA IN WISTAR ALBINO RATS

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ABSTRACT

The present study deals Anti-pyretic and Wound healing activities of the leave extracts of *Argyreia cuneata*, The result of the antipyretic activity revolved that the hydroalcoholic extract showed significant antipyretic activity at all tested dose levels compared with standard and wound healing activity revealed that the hydroalcoholic extract and leaf juices were investigated for the evaluation of its healing efficiency. The hydroalcoholic extract and leaf juices showed a significant wound healing activity which was well comparable with the standard drug used. Leaf juice showed greater activity than hydroalcoholic extract and standard Nitrofurazone. The present study justifies its use in the folklore remedies as an Anti-pyretic and wound healing activities.

KEY WORDS

Argyreia cuneata, Anti-pyretic, Wound healing, Paracetamol, Nitrofurazone.

INTRODUCTION

Argyreia cuneata (Willd.) Ker also known as *Convolvulus cuneata* Willd. Family: Convolvulaceae, is a perennial climbing shrub which is native to the Indian subcontinent, distribution throughout South India¹. The leaf paste applied all over the body for curing intermittent fever and leaves pounded with leaves of *Lantana camara* in 1:1 proportion paste used to massage painful joints by Jenukurubas², the plant is widely used in Indian folk medicine for treating burns, Flower extract as a Natural Indicator in Acid Base Titration³. In India, the plant *Argyreia cuneata* traditionally used in the treatment of diabetes. *Argyreia cuneata* can be used as oral hypoglycemic agent in West Africa. The phytoconstituents present in the plant are Phytosterol, Sitosterol and Alkaloids⁴.

MATERIALS AND METHODS

Plant material:

The leaves of plant (1 kg) was collected from young matured plants from pakala, Warangal and authenticated by Prof. V. S. Raju, Department of Botany, Kakatiya University, Warangal. A voucher specimen (MRM/2/2013) has been deposited in the Department of Pharmaceutical Sciences, Andhra University, Visakhapatnam. The collected plant material was shade dried and pulverized.

Preparation of the extract:

The powdered plant material (500 gm) of was extracted ethanol-water (1:1) 6 h. The solvents were then removed under reduced pressure and dried in desiccators. The extracts were suspended in Tween 80 (20%v/v in distilled water) and used for the present study.

Anti-pyretic activity of hydroalcoholic extract of *A.cuneata*

Anti-pyretic activity on albino rats was studied with fever induced by 15% brewer's yeast. Healthy Wistar strain albino rats weighing about 120-150gm were taken. They were fasted overnight with water ad libitum before inducing pyrexia animals were allowed to quiet in the cage for some time and after that their basal rectal temperature were measured by using a clinical digital thermometer by insertion of thermometer to a depth of one inch into the rectum. After taking the temperature, pyrexia was induced by injecting subcutaneously 15% w/v suspension of brewer's yeast in distilled water at a dose of 10ml/ kg body weight in the back below the nape of the neck. The site of injection was massaged in order to spread

the suspension beneath the skin and the rats were returned to their cage and allowed to feed. After 18h of brewer's yeast injection the rise in rectal temperature was recorded. Only rats which were shown an increase in temperature of at least 0.6°C were used for further experiment⁷. The animals were divided into 5 groups, each group contains 6 animals. Group I (control) received 1% Tween 80 in normal saline (10 mL/kg). Group II (positive control) received 100mg/kg body weight Paracetamol orally. Group III and IV received ethanolic crude extract; after the drug was administered the temperature of all the rats in each group was recorded at 1, 2, 3 and 4 h. The mean temperature was calculated for each group and compared with the value of standard drug Paracetamol.

Table-10.1 Anti-pyretic activity of hydroalcoholic extract of *Argyrea cuneata*

Groups	Initial temp(c) before yeast	Rectal temp after 18hr of yeast injection				
		0hr	1 st hr	2 nd hr	3 rd hr	4 th hr
Control	37.21±0.11	38.16±0.15	38.17±0.1	38.17±0.1	38.16±0.11	38.14±0.11
Paracetamol	36.98±0.16	38.09±0.18	37.68±0.07*	37.32±0.07***	37.15±0.03***	36.84±0.05***
Hydroalcoholic extract of <i>A.cuneata</i> (100 mg/kg)	36.97±0.1	37.70±0.05	37.53±0.06**	37.38±0.07**	37.18±0.11	36.94±0.1***
Hydroalcoholic extract of <i>A.cuneata</i> (200 mg/kg)	36.93±0.10	37.48±0.04	37.24±0.14**	37.10±0.10**	37.0±0.08**	36.90±0.12***

Results expressed as Mean ± SEM from six observations

* P < 0.01,

** P < 0.001

Wound healing activity of *A.cuneata* extract

For testing the wound healing property, a method known as Excision wound model⁸ was selected and the procedure was as follows.

The selected Wistar rats were divided into four groups of six in each. The skin hair was removed by using a depilatory cream. Light incisions were made on the cleared surface by cutting the skin of the animals under mild ether anesthesia. The area of the wounds was measured (sq.mm) immediately by placing a transparent polythene graph paper over the wound and then tracing the area of the wound on it. This was taken as the initial wound area reading. All the test samples were applied topically. Group-I served as

control. Group-II served as reference Nitrofurazone (0.2 % w/w in simple ointment) was applied topically. Group-III animals were treated with the hydroalcoholic extract and the Group-IV animals with the juice of the fresh leaves in a similar manner. All the test samples were applied twice daily. The wound area of each animal was measured on 1st, 4th, 8th, 11th and 14th day. The percentage healing was calculated from the days of measurements of wound area. The results were presented in Table 1.2 as mean± S.E.M. Significance of difference between control and treated groups was determined using Student's t-test.

Table-1.2 wound healing activity of hydroalcoholic leaf extract of *A.cuneata* in excised rats

Group	Treatment	Percentage inhibition of wound on the day of study				
		1 st	4 th	8 th	11 th	14 th
I	Control	0	24.82±.26	44.67±5.88	60.28± 2.48	63.83 ± 1.18
II	Nitrofurazone (0.2% w/w)	0	22.69±7.84	57.35±7.36	87.24± 0.82	95.19± 0.33*
III	Hydroalcoholic Extract of <i>A.cuneata</i> (10% w/w)	0	9.6 ± 2.68	48.24±4.78	77.61± 2.91	91.29± 2.28*
IV	Leaves juice of <i>A.cuneata</i>	0	20.46±6.75	57.26±6.46	82.26± 1.83	96.2± 1.08*

Results expressed as Mean ± SEM from six observations * P < 0.001 on 14th day

RESULT AND DISCUSSION

The result of the antipyretic activity revolved that the hydroalcoholic extract showed significant antipyretic activity at all tested dose levels cooperated with standard Paracetamol, the studies on wound healing activity revealed that the Nitrofurazone treated animals showed 95.19% healing on 14th day of study. On the other hand, the extract treated group showed 91.29% healing and the leaf juice treated groups exhibited 96.07% wound healing, the present work justifies its use in the folklore remedies as an anti pyretic and wound healing activity.

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