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Analgesic Activity of Ethanolic Extract of *Rumex vesicarius*

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Abstract: *Rumex vesicarius is one of the famous medicinal plants used in the treatment of large number of human ailments as mentioned in Ayurveda.In present study we investigated the analgesic activity of ethanolic extract and were evaluated for its invivo analgesic activity by using Eddy's Hot Plate Method and Tail Immersion Method in Albino rats. In these cases Diclofenac Sodium was taken as the standard drug. The extract at the doses of 200 and 400 mg/kg elicited a significant analgesic activity in a dose dependent manner by using Eddy's Hot Plate Method and Tail Immersion Method.*

Keywords: *Analgesic, Diclofenac Sodium, Eddy's Hot Plate, Rumex vesicarius, Tail immersion Method.*

I. Introduction

Rumex vesicarius Linn. (Polygonaceae) is commonly called as Chukka kura in Telugu, Chukra in Hindi, Bladder Dock in English [1]. *Rumex vesicarius L*. is a wild edible plant used as a sorrel and collected in spring season and eaten fresh or cooked. *Rumex vesicarius L*. has many important medicinal uses such as treatment of hepatic diseases, bad digestion, diuretic, laxative, tonic, analgesic, purgative and antibacterial agents. The plant can be used to reduce biliary disorders and control cholesterol levels [2-7]. The plant contains many bioactive substances such as flavonoids (vitexin, isovitexin, orientin), also contain anthraquinones particularly in roots (emodin and chrysophanol). The plant also contains carotenoids, vitamins (vitamin c), proteins, lipids and organic salts [8-11]. The above mentioned bioactive phytochemicals (polyphenols, flavonoids, carotenoids, tocopherols and ascorbic acid) have a role as antioxidant and detoxifying agents. The intake of antioxidant phytochemicals like carotenoids and flavonoids will protect against non- communicable diseases in human beings such as "cancer, cardiovascular diseases" [12-13].The present study is an attempt to evaluate the analgesic activity of *Rumex vesicarius*.

II. HEADINGS

III. Materials And Methods

Plant Material:

Rumex vesicarius leaves were collected from Narsapur, Medak district and authenticated by D. Venkateshwar Rao, Deputy Director, AP Forest Academy, Hyderabad, Rangareddy District.

Preparation of Extracts:

The collected aerial parts of the plant were washed and dried under the shade. Around 500 g of the coarsely powdered aerial parts of the plant was packed in a soxhlet apparatus and extracted with ethanol.

Animals:

Albino Wister rats (weighing 150-200 g) of both sexes, were procured from National Institute of Nutrition, Hyderabad, India and were housed in standard metal cages. They were provided with food, water *ad*

libitum and allowed a one week acclimatization period prior to the study. The protocol was approved by Institutional animal ethical committee of VIPER, Narsapur, Medak and the study was performed according to the CPCSEA guidelines (1358/ac/10/CPCSEA).

Experimental design:
The animals were divided into 4 groups of 6 animals each and doses given as follows:
Group I: Control rats: Treated with 2 ml of 1% gum acacia suspension p.o
Group II: Served as standard and received Diclofenac sodium 10mg/kg body weight orally.
Group III: Served as test and received Ethanolic extract of *Rumex vesicarius* 200mg/kg body weight orally.
Group IV: Served as test and received Ethanolic extract of *Rumex vesicarius* 400mg/kg body weight orally.

Screening of analgesic activity:
Hot plate reaction time in rat:

The animals were placed individually on hot plate regulated at temperature (55±0.5ºC) before the treatment and its reaction time was determined. After noting the initial reaction time, the treatment should be given to each rat. Then each of the animals is placed on the Eddy's hot plate under regulated temperature to obtain animal response licking of the forepaws or jump of the hot plate surface was recorded as the hot-plate latency. Rat with baseline latencies of 30s were eliminated from the study. The reaction time is noted by stop-watch and then the reaction time was re-determined after 0, 30, 60 & 90 min. after oral administration of standard and test drug [14].

Tail immersion method:

The tail immersion method was used to evaluate the analgesic activity. The painful reactions in animals were produced by thermal stimulus that is by dipping the tip of the tail in hot water [15].The group I was served as control received 1% gum acacia orally, group II served as standard which received Diclofenac sodium 10mg/kg and group III and IV received in a dose of 200 and 400 mg/kg extract of ethanol. After administration of above drug, the basal reaction time was measured after regular interval of 30 min by immersing the tail tip of the rat in hot water heated at the temperature (55±1) ºC. The actual flick responses of rat i.e. time taken in second to withdraw its tail from the hot water calculated and result were compared with the standard group.

IV. Figures and Tables

Table I: Analgesic activity of ethanolic extract of *Rumex vesicarius* on hot plate reaction in rat

Group	Dose mg/kg	Mean latency (s) before and after drug administration (s)			
		0 min	30 min	60 min	90 min
GroupI(Control) 1%Gumacacia	5ml	2.11±0.05	2.14±0.03	2.13±0.04	2.16±0.01
Group II (Diclofenac Sodium)	10	2.14±0.08	5.55±0.04	8.14±0.05	11.89±0.03
Group III(*Rumex* 200)	200	2.15±0.02	4.8±0.09	7.81±0.01	8.2±.0.05
Group IV(*Rumex* 400)	400	2.16±0.03	4.98±0.03	8.08±0.005	9.9±0.03

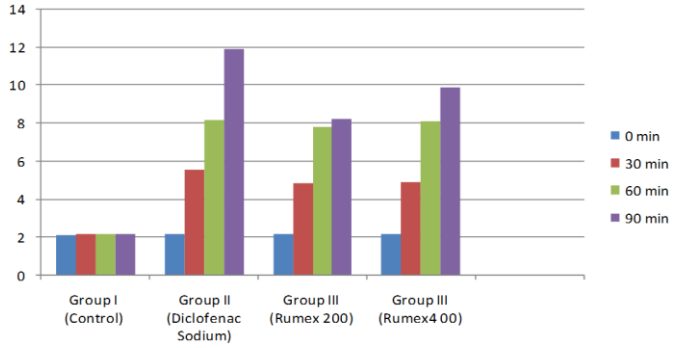
Table II: Analgesic activity of ethanolic extract of *Rumex vesicarius* by tail immersion response.

Group	Dose mg/kg	Mean latency (s) before and after drug administration (s)			
		0 min	30 min	60 min	90 min
GroupI(Control) 1%Gumacacia	5ml	2.13±0.01	2.15±0.03	2.11±0.07	2.13±0.04
Group II (Diclofenac Sodium)	10	2.17±0.07	5.25±0.04	7.14±0.01	9.19±0.03
Group III(*Rumex* 200)	200	2.11±0.01	3.8±0.07	4.81±0.04	5.9±.0.02
Group IV(*Rumex* 400)	400	2.15±0.04	4.28±0.07	6.08±0.007	8.18±0.04

V. Conclusion

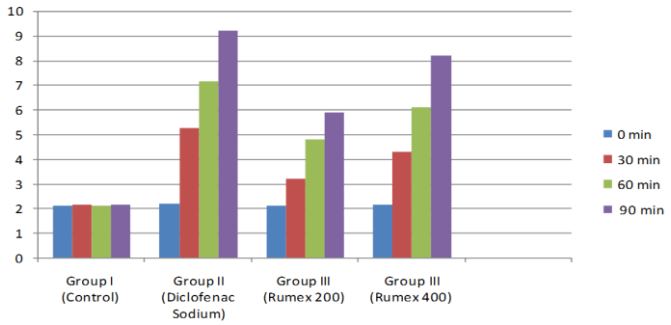
Hot plate reaction time in rat:

The results of the effect of *Rumex vesicarius* on hot plate method is presented in table I. The result show that there was no significant different in the pain reaction time when the drug was not given. After the drug and extract administration, comparing the pre and post drug pain reaction time showed that the standard drug Diclofenac sodium and the *Rumex* 200mg/kg and 400 mg/kg significantly increased the pain reaction time with the extract. The *Rumex* 400mg/kg showed better analgesic activity when compared to the *Rumex* 200mg/kg.



Tail immersion method:

The result of tail immersion test in rat is shown in table II. The results showed that the standard drug and the *Rumex* 400mg/kg showed significant results. *Rumex* 200 mg/kg shows less activity when compares to the *Rumex* 400mgkg.



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