Available online on 15.08.2019 at http://jddtonline.info

Journal of Drug Delivery and Therapeutics

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Open Access Research Article

Analgesic Activity of Hydroalcoholic Leave Extract of the *Putranjiva roxburghii.*

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ABSTRACT

Background: this study was aimed to assess the possible analgesic activity of *Putranjiva Roxburghii* in albino's Wister rats.
Method: Rats were divided in 5 groups of 6 animal each, I group served as control, II group as standard (Pentazocin) while group III, IV and V were treated with leaves extract of *Putranjiva Roxburghii* at doses of 20,100,200 and 400 mg/kg respectively. The statistical analysis of results were carried out using and one way (ANOVA) followed by students t-test.
Result and Discussion: the analgesic activity was determined based on the reaction time. The effect of the hydroalcoholic leaves extract of *Putranjiva Roxburghii* and references also evaluated. The hydroalcoholic leaves extract of *Putranjiva Roxburghii* administered orally the four different doses produced significant analgesic activity and reduced Pentazocin induced reaction time (analgesic effect) in dose dependent manner. The effect of 400 mg/kg (p.o.) having better activity than 100 and 200 mg/kg was similar to that of reference drug Pentazocin (5 mg/kg, p.o.).
Conclusion: the results showed that hydroalcoholic leave extract of *Putranjiva Roxburghii* has a 400 mg/kg act as significant for analgesic activity.
Keywords: Analgesic, Pentazocin, reaction time.

Article Info: Received 08 June 2019; Review Completed 16 July 2019; Accepted 19 July 2019; Available online 15 August 2019

Cite this article as:

Kumar P, Mani M, Varma N, Yadav S, Singh P, Diksha, Analgesic Activity of Hydroalcoholic Leave Extract of the *Putranjiva roxburghii.*, Journal of Drug Delivery and Therapeutics. 2019; 9(4-s):16-17 **http://dx.doi.org/10.22270/jddt.v9i4-s.3154**

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INTRODUCTION:

An analgesic or painkiller is any member of the group of the drugs to achieve analgesia, relief from pain. Analgesic drug act in various ways on the peripheral and central nervous systems. They distinct from anesthetics, which temporarily affect, and in some instances completely eliminate, sensation [1-2].

The use of analgesic effect such as belladonna this for novel safe analgesic drugs seems therefore, inevitable. The traditional use of *Putranjiva Roxburgii* in analgesic we have evaluated the analgesic effect of *Putranjiva Roxburghii* and that provide the scientific ground on the use of analgesic effect [3-5].

MATERIAL AND METHOD:

Collection and Extraction of Plant Material:

The leaves of *Putranjiva roxburghii* were obtained from Lucknow city and authenticated by Department of Botany, IFTM University, Moradabad, U.P. A voucher specimen was preserved in the department for future reference. The dried leave were powdered mechanically. The powdered material exhaustively extracted with hydroalcoholic solvent for 48 hr. the extract was filtered and concentrated in vacuum under reduced pressure using rotary flash evaporator, dried in the desiccator. The yield was recorded and the extract was kept in refrigerator.

Animals: Wistar albino rats, weighing 120-150 g, were used for acute toxicity study and evaluation of pharmacological studies. Animals were housed in standard environmental conditions and fed with standard rodent diet and water.

Acute Oral Toxicity Study and Selection of Doses: Acute oral toxicity studies of hydroalcoholic extract was determine as per Organization of Economic Co-Operation and Development (OECD) guideline no. 423 (Acute oral toxicity class method). It was observed that the *Putranjiva roxburghii* is not producing any toxicity up to 2000 mg/kg dose orally. Hence (100 and 200 and 400 mg/kg) were selected for this study.

ANALGESIC ACTIVITY [6-8]:

Rats fasted for 12 h before the experiment were placed individually in cages lined with clean filter paper. Rats were divided in five groups with I group acting as the control and administered saline (5 ml/kg, p.o.) that acted as the negative control. The II group received Pentazocin (20 mg/kg, p.o.), this served as the positive control. The III, IV and V groups received 100, 200 and 400 mg/kg per os of the *Putranjiva roxburghii* hydroalcoholic leaves extract. The administration was done using metal or pharyngeal cannula. The reaction time in all five groups was monitored for 1 h. In the present investigation analgesic activity showed significant analgesic effect with 400 mg/kg.

RESULTS

Effect of Hydroalcoholic leave Extract of *Putranjiva roxburgii* on Pentazocin induced reaction time (analgesic effect) in Rats:

In the Pentazocin induced reaction time the hydroalcoholic leave extract of *Putranjiva roxburgii* at the doses of 200 and 400 mg/kg (p.o.) increased the total number of reation time in a dose dependent manner, and the results were statistically significant (table 2). There was less significant effect with the dose of 100 mg/kg (p.o.) of the extract compared with the **control, the reduction** of Pentazocin induced reaction time (analgesic effect) at 400 mg/kg (p.o.) of plant extract treatment was found to be almost comparable with that of treatment by 5 mg/kg of Pentazocin.

Table 1: Reaction time of *Putranjiva roxburghii* Hydroalcoholic Extract and pentazocin using hot plate test in Rats:

Group (Treatment)	Dose mg/kg	Reaction Time (s) Mean ± SE			
		Basal (0 min)	15 min	30 min	60 min
Control (Saline)	5 ml/kg	4.30±0.05773	5.25±0.0763	5.31±0.0600	5.71±0.0600
Pentazocin	20 mg/kg	4.75±0.04281	7.55±0.0763	9.35±0.0670	10.55±0.0428
Putranjiva Roxburghii	100 mg/kg	4.30±0.05773	5.61±0.0954	5.70±0.0577	5.93±0.9060
Putranjiva Roxburghii	200 mg/kg	4.31±0.07031	5.76±0.1145	5.90±0.0856	6.08±0.0792
Putranjiva Roxburghii	400 mg/kg	4.70±0.04772	6.55±0.0763	8.75±0.0991	10.06±0.0918

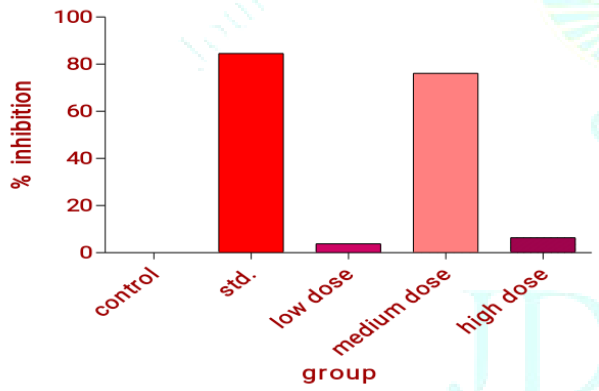

Fig 1: Graph represents the Reaction time of *Putranjiva roxburghii* Hydroalcoholic Extract and Pentazocin using hot plate test in Rats

Statistical Analysis:

Data were expressed as mean ± SEM of 6 animals. Results were analyzed statistically by one way ANOVA followed by Dunnet's multiple comparison tests using prism software 0.5 version the difference were considered significant if $p<0.05$.

DISCUSSION

The analgesic activity of *Putranjiva roxburghii* was studied on rats. The results showed that an oral administration of the hydroalcoholic leave extract of *putranjiva roxburgii* produced significant and dose dependent increase in reaction time (analgesic effect) output of rats. These effect were comparable with that of Pentazocin (Standard Drug) At Moderate Dose 400 Mg/Kg. Pentazocin Affect, it acts as agonist on K receptors and is a weak antagonist at μ and delta receptors that show analgesic effects

The observed activities therefore suggest that analgesic activity of hydroalcoholic leave extract of the *Putranjiva roxburghii* May be mediated through this mechanism of action of Pentazocin are by replacing it with *Putranjiva roxburghii* for the treatment of reaction time (Analgesic Activity).

CONCLUSION

This study showed that 400 mg/kg hydroalcoholic leave extract of *Putranjiva roxburghii* has significant for analgesic effect in addition to the various physiological effect. Further studies may be directed at characterizing the bioactive ingredient that are responsible for the observed activity in the plants.

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