

Study of Analgesic Activity of Cow Urine and Its Distillate by Rat-Tail Immersion Method

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ABSTRACT

In the present study, cow urine and its distillate have been subjected to investigation for their analgesic properties using rat-tail immersion method. The observed activity in test animals was compared with the activity of standard Diclofenac sodium solution administered in another set of animals. The results endorse the recommended utility of cow urine in ancient *Ayurvedic* texts and also suggest a possible use of this easily obtainable, reasonably safe and economical natural substance in contemporary times.

INTRODUCTION

Indian system of medicines, especially *Ayurved*, has been using cow-urine for betterment of physical and mental health of mankind since thousands of years. Ancient texts and literature recommend use of *gomutra* for variety of conditions and ailments including gastric troubles, wounds, injuries, skin disorders, diabetes, etc. Cow-urine is considered to be the most effective animal origin substance having intrinsic property of general health improvement. It is considered to be the most useful medicinal component of *Panchagavya*. (*Panchagavya* is a term used in *Ayurved* to describe five important substances obtained from cow namely urine, dung, milk, ghee and curd.) Many formulations mentioned in *Ayurved* describe the use of *Panchagavya* components either alone or in combination with drugs of herbal, animal or mineral origin. However, scientific data are not available regarding pharmacological aspects of cow urine nor are there any scientific data, which could corroborate the claims. Therefore, as a part of broader investigations to verify the claimed utility of cow urine, it was thought worthwhile to study its analgesic activity using experimental animals.

MATERIAL AND METHODS

1. Cow urine collection and its distillation

Fresh cow urine was obtained from *Go-Vigyan Anusandhan Kendra*. (*Go-Vigyan Anusandhan Kendra* is a research center established at Deolapar, in Nagpur district. It maintains a well equipped *Gaushala* which has almost all types of Indian breed cows. The Kendra is fully dedicated towards the research activity and is also engaged in production of different medicinal formulations based on *Panchgavya*.) The urine was filtered through ordinary filter paper to remove all visible extraneous matter. Part of filtered urine was subjected to distillation to obtain distillate.

2. Administration of urine and distillate into experimental animals

Healthy albino rats of either sex weighing 150-200g were used. The animals were housed in standard environmental conditions of temperature (31^o). The rats were fed with standard diet and tap water. All the animal experiments were performed following the due approval for study protocols by the Institutional Animal Ethics Committee (Reg. NO. 536/02/CPCSEA). The neat cow urine and its distillate were evaluated for their analgesic activity by Tail Immersion method. Albino rats were divided

into four groups each consisting of six animals.

Group-I ----- Negative control (administered orally plain distilled water)

Group-II-----Standard (administered orally diclofenac sodium solution- 50 mg/kg,)

Group-III---- Test I (administered orally 2ml neat cow urine).

Group-IV---- Test II (administered orally 2ml distillate).

3. Tail immersion method

The method involves immersion of rat's tail into a beaker containing water heated on a hot plate and maintained at 70°C ($\pm 1^{\circ}$). The time taken for reflex action is indicative of analgesic effect.

One by one, tails of the rats from each group were immersed in hot water beaker. The time at which the animal lifted its tail sensing the heat was noted. The reflex action time was recorded at 0th, 30th, 60th and 90th minute after administration (of water, standard drug, cow urine and distillate into group I to IV, respectively).

RESULTS AND DISCUSSION

From the observations shown in the following table, it can be inferred that both-cow urine and its distillate do possess notable analgesic activity. The distillate, especially, exhibited significant activity after 90 minutes after the administration.

Table 1: Analgesic activity of neat cow-urine and its distillate on Albino rats

Group	Sample	Average reaction time (sec) (Mean \pm SEM)		
		30 min	60 min	90 min
I	Distilled water (control)	3.28 \pm 0.01	3.60 \pm 0.03	3.70 \pm 0.02
II	Diclofenac Sodium	9.07 \pm 0.02*	10.55 \pm 0.02*	11.22 \pm 0.02*
III	Neat Cow Urine	7.63 \pm 0.008*	8.25 \pm 0.06*	8.36 \pm 0.37*
IV	Distillate	7.98 \pm 0.03*	8.28 \pm 0.09*	9.34 \pm 0.09*

*n=6 in each group. * P < 0.01 compared to control*

The above results endorse the utility of cow urine in pain relief treatment as recommended in *Ayurvedic* texts.

CONCLUSION

Cow urine and its distillate show reasonably significant analgesic activity which is comparable with the conventional modern analgesic agents in regular use. Considering their other advantages, they present a potential case for conversion into suitable formulation. Their analgesic activity is attributable to the steroidal moieties and some volatile fatty acids whose presence in cow urine is established through other parallel studies involving chemical and instrumental analysis.

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