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°C). 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 dicalfenac 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 (+1°C). The time taken for reflex action is indicative of analgesic effect.

### 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

<table>
<thead>
<tr>
<th>Group</th>
<th>Sample</th>
<th>Average reaction time (sec) (Mean ± SEM)</th>
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<tbody>
<tr>
<td>I</td>
<td>Distilled water (control)</td>
<td>3.28 ±0.01</td>
</tr>
<tr>
<td>II</td>
<td>Dicalfenac Sodium</td>
<td>9.07±0.02*</td>
</tr>
<tr>
<td>III</td>
<td>Neat Cow Urine</td>
<td>7.63±0.008*</td>
</tr>
<tr>
<td>IV</td>
<td>Distillate</td>
<td>7.98±0.03*</td>
</tr>
</tbody>
</table>

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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### REFERENCES