Diuretic activity of flowers of *Jasminum auriculatum* Vahl

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ABSTRACT

The decoction of flowers of *Jasminum auriculatum* Vahl of Oleaceae widely used in Ayurvedic system of medicine for the treatment of burning sensation, cardiopathy, urolithiasis, nephrolithiasis, strangury, dermatopathy, cardiotonic, diuretic and depurative. Preliminary phytochemical investigation of alcoholic and aqueous extracts of the flowers of *Jasminum auriculatum* showed the presence of flavonoids, sterols, tannins and glycosides (flavonoidal). Alcoholic and aqueous extracts of flowers were investigated for its diuretic activity in albino rats. Results revealed that both the extracts showed significant diuretic activity at a dose of 250 mg/kg body weight by increasing the total volume of urine and concentrations of potassium and sodium salts in urine as compared to the standard drug Frusemide (100mg/kg body weight).

Key words: *Jasminum auriculatum*, Flowers, Diuretic activity.

INTRODUCTION

A scendent, pubescent or velvety shrub with grey-pubescent branchlets; flowers trifoliate with two lower leaflets broadly ovate, acuminate or rounded, main nerves few inconspicuous, petioles very short, flowers white, sweet scented, many in trichotomous paniculate cymes, corolla lobes 5-8; fruits globose, black, distributed throughout South India on the dry slopes of the Western Ghats. The roots are useful in skin diseases especially for ringworm. The flowers are fragrant, bitter, acrid, sweet, refrigerant, astringent, cardiotonic, diuretic and depurative. They are useful in burning sensation, hyperdesia, ulcers, odontalgia, stomatopathy, ophthalmopathy, cardiopathy, urolithiasis, nephrolithiasis, strangury and dermatopathy [1]. The present investigation was undertaken to confirm traditional medicinal use of the plant.

MATERIALS AND METHODS

Preparation of the Extracts: The fresh flowers of *J. auriculatum* were collected from local areas of Belgaum, Karnataka, India during May-2008 and authenticated at Botanical Survey of India (BSI), Dehradun, India. A voucher specimen of the plant was deposited in the Botanical Survey of India herbarium under the number BSI/DD/Tech/572. The flowers were dried in shade and were ground to get a coarse powder (40 mesh size).

The aqueous extract (AqE, 10%, w/v) of flowers was prepared using distilled water, by maceration method for 7 days at room temperature (yield 8.6%, w/w) and alcoholic extract (AlcE, 10%, w/v) was prepared using 70% (v/v) alcohol by soxhlet method at a temperature of 60-70 ºC (yield 5.4%, w/w). The extracts were concentrated under vacuum and dried over anhydrous sodium sulphate in desiccator. Analytical grade reagents were used [2].

Acute toxicity studies were conducted by using albino mice of either sex weighing between 20 and 25 gms and of 90 days age. The animals were fasted over night prior to the experimental procedure. The method of Up and Down or Staircase was used to determine the dose [3]. A suspension of AqE and AlcE in 2% (v/v) Tween 80 was prepared for oral administration by gastric intubation method. Wister strain albino rats (150-200 gms) of either sex were used for diuretic activity. The animals were grouped into four groups of four animals each and maintained on standard diet and water, *ad libitum*.

Assessment of Diuretic activity: The effect of alcoholic and aqueous extracts was evaluated according to the method of Lipschitz [4-5]. Frusemide (100mg/kg body weight) was employed as a standard diuretic agent. Male albino rats of Wister strain weighing between 150-200 gms were divided into four groups of four each. The rats were deprived of food.
and water 18 h prior to the experiment. They were then administered with normal saline at the proportion of 25 mL/kg body weight. The test drug and standard diuretic Frusemide were administered to the animals of respective group in same total volume of normal saline. Each group was placed in a perforated plastic container at the bottom of which a glass funnel was fixed. The stem of the funnel was inserted in a measuring cylinder. The urine was collected after five hours of dose administration. The bladder was emptied, by pulling the base of tail of each rat. The total volume of urine collected, measured and presented in table I.

**DISCUSSION**

The preliminary pharmacological screening of the alcoholic and aqueous extracts revealed that both extracts have diuretic activity. Alcohol extract exhibited maximum diuretic activity among the test groups. Taking Frusemide output as 100%, the two extracts showed diuretic activity as follows-alcohol 94.81 and aqueous 91.81%. Hence from the above results we can conclude that both alcoholic and aqueous extracts showed significant diuretic activity by increasing the total urine output and increased excretion of sodium and potassium salts, comparable to the standard drug Frusemide.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Dose (mg/kg body weight)</th>
<th>No. of rats used</th>
<th>Total urine volume (mL)</th>
<th>Electrolyte excretion (Na+ meq/ltr)</th>
<th>K+ (meq/ltr)</th>
<th>Na+/K+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>25 mL/kg</td>
<td>4</td>
<td>3.10</td>
<td>58</td>
<td>52</td>
<td>1.11</td>
</tr>
<tr>
<td>Frusemide</td>
<td>100</td>
<td>4</td>
<td>5.01</td>
<td>95</td>
<td>76</td>
<td>1.25</td>
</tr>
<tr>
<td>Alcoholic extract</td>
<td>250</td>
<td>4</td>
<td>4.75</td>
<td>91</td>
<td>73</td>
<td>1.24</td>
</tr>
<tr>
<td>Aqueous extract</td>
<td>250</td>
<td>4</td>
<td>4.60</td>
<td>89</td>
<td>71</td>
<td>1.25</td>
</tr>
</tbody>
</table>

**REFERENCES**


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