INTRODUCTION

As indicated by the World Health report, roughly 450 million individuals experienced behavioral issue, yet just a little minority of them got even the most essential treatment. This adds up to 12.3% of the worldwide weight of ill health, and will ascend to 15% by 2020. In the look for new remedial items for the treatment of neurological issue, restorative plant examine, around the world, has advanced continually, showing the pharmacological adequacy of various plant species in an assortment of animal models. Psychosis is a side effect of emotional sickness portrayed by a radical change in identity and a mutilated or decreased feeling of target reality.

Psychosis shows up as a manifestation of various mental issues, including inclination and identity issue, schizophrenia, preposterous confusion and substance mishandle. It is additionally the characterizing highlight of the insane issue (i.e., brief maniacal issue, shared crazy issue because of a general therapeutic condition, and substance-incited insane confusion). Patients experiencing psychosis can’t recognize the genuine from the unreal. They encounter mental trips as well as hallucinations that they accept are genuine, and they ordinarily carry on in an unseemly and confounded way. It has lead researchers to explore plants, which are normally utilized in conventional and interchange arrangement of pharmaceutical for psychotic disorders and related diseases.

Now a days several plants are being used as alternative medicine for management of psychosis. Citrus fragrances have been particularly attributed with mood enhancing properties by aroma therapists. Volatile oils isolated from grapefruit (Citrus paradisi), bergamot (Citrus bergamia), lime (Citrus aurantifolia), mandarin (Citrus nobilis) and orange (Citrus aurantium) are regularly utilized as a part of the treatment of depression. A literature review revealed that Citrus limon is one of the widely used plant employed in herbal medicine and aromatherapy. However, no significant work has been initiated on the psychotic effects of the plant extracts. Henceforth, the present examination was intended to assess the anti psychotic activity of leaves extract of Citrus limon.

MATERIALS AND METHODS

Plant material

The leaves of Citrus limon were procured from the Animal House, Saroj Institute of Technology and Management, Lucknow. The animals were given standard laboratory feed and water. The experimental animals [Swiss albino mice (20 - 25 gm) of either sex] were procured from the Animal House, Saroj Institute of Technology and Management, Lucknow. The animals were given standard laboratory feed and water. The experiments were performed between 8.00 am to 1.00 pm. The experiments were conducted in a sound proof laboratory. All the experimental procedures and protocols used in the study were reviewed by the Institutional Animal Ethics Committee.

Open field locomotor test (OFLT)

The OFLT area was made of acrylic (transparent walls and black floor; 30cm x 30cm x 20 cm) divided into nine squares of equal area. The OFLT was used to evaluate the animal’s exploratory activity. The observed parameters were: number of squares crossed (with the four paws) during three minutes after one minute for acclimatization (loco motor activity) and number of rearing.
Treatments

The animals were divided into four groups of 6 animals each. All the four groups were treated with amphetamine to induce psychosis at the dose of 2mg/mice i.p. The mice in third and fourth group were treated with hydro ethanolic extract (100mg & 200mg; p.o) and the reference drug chlorpromazine (2mg/kg; i.p.) respectively 30 min post amphetamine administration. The first group served as the control and received 0.5% CMC suspended in distilled water and both the i.p. dose received normal saline suspended in distilled water.

Table 1: Anti-psychotic activity of hydro alcoholic extract of leaves of Citrus limon Lin.n. in open field locomotor model

<table>
<thead>
<tr>
<th>Groups</th>
<th>Treatments</th>
<th>Locomotor activity (Avg±SEM)</th>
<th>No. of rearings (Avg±SEM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Control (0.5% CMC)</td>
<td>49.5±0.304</td>
<td>25.6±0.280</td>
</tr>
<tr>
<td>2.</td>
<td>Std. Chlorpromazine(2mg/ kg)</td>
<td>8.5±0.390</td>
<td>5.3±0.192</td>
</tr>
<tr>
<td>3.</td>
<td>100 (mg/kg)</td>
<td>23.67±0.380*</td>
<td>13±0.333*</td>
</tr>
<tr>
<td>4.</td>
<td>200 (mg/kg)</td>
<td>19±0.333*</td>
<td>8.5±0.204*</td>
</tr>
</tbody>
</table>

Each value represents the mean ± SEM (n=6), significant levels* P < 0.01 as compared with respective control (Turkey’s Test).

Statistical analysis

The Psychotic activities of the extracts, Chlorpromazine and control were analyzed by one way analysis of variance (ANOVA). The test groups were compared with standard/control by students t-Test. Difference were considered significant at p<0.05.

RESULT

The results obtained from the OFLT model, indicates that hydroethanolic extract showed significant (p<0.05) anti psychotic activity as compared to chlorpromazine. The no. of crossings was increased by control (amphetamine) (49.5±0.304; 25.6±0.280) and significantly decreased by chlorpromazine (8.5±0.390; 5.3±0.192). The leaves of Citrus limon Linn. indicated a significant decrease (P<0.05) in locomotion no. and no. of rearing at different doses 100 mg/kg of leaves of Citrus limon extracts (23.67±0.380; 13±0.333) and 200 mg/ kg (19±0.333; 8.5±0.204) comparable to reference drug, Chlorpromazine (2mg/kg) and result are shown in Table 1, Figure 1 and 2; the observation and the statistical analysis shows the positive effect of the extract of the leaves of Citrus limon Linn. in the stage of psychosis.

Figure 1: Graphical representation of observed parameter for various treatment groups Open Field Locomotor test (No. of squares crossed)

Figure 2: Graphical representation of observed parameter for various treatment groups Open Field Locomotor test (No. of rearing).
CONCLUSION

The leaves of *Citrus limon* Linn. indicated a significant decrease (P<0.01) in locomotion no. and no. of rearing at different doses 100 and 200 mg/kg of leaves of *Citrus limon* extracts, comparable to reference drug, Chlorpromazine (2mg/kg) and result showed in Table 1 and Figure 1 and 2 the observation and the statistical analysis shows the positive effect of the extract of the leaves of *Citrus limon* Linn. in the stage of psychosis. The result of the study justified the use of extract of *Citrus limon* Linn. leaves as antipsychotic agent. Thus, the extract can be a key contributor in home based formulation in the treatment of psychosis. This is contributed by the fact that the plant is versatile and is able to grow in all climate and seasons throughout the country and easily identifiable.

ACKNOWLEDGEMENT

The authors are thankful to Dr. Satyawan Singh, Director of SITM (Department of Pharmacy) Lucknow, for his guidance. We are glad to express our special thanks to National Botanical Research Institute, Lucknow.

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Cite this article as:

http://dx.doi.org/10.7897/2277-4343.083203

Source of support: Nil, Conflict of interest: None Declared

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