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PRELIMINARY PHYTOCHEMICAL ANALYSIS AND ACUTE ORAL TOXICITY STUDY OF CLITORIA TERNATEA L. ROOTS IN ALBINO MICE

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ABSTRACT
Clitoria ternatea has been using since the ancient times for its medicinal values. Almost all the parts of the plant have medicinal property. The root of the plant is reported to have anti diarrheal, Anti histaminc, cholinerigic activity etc. Traditionally the root has been using for the treatment of many diseases like leucorrhoea, diarrhea, urinary problems, diuretic, impotency, stomach trouble etc. The present study was designed to investigate the preliminary phytochemical analysis and acute oral toxicity of the root of the plant. The shed dried materials were grinded and used in the study. The preliminary phytochemical analysis was done by following standard protocols. For acute oral toxicity study, methanolic extract of the root was used. The extract was prepared by standard protocol. The preliminary phytochemical analysis showed the presence of proteins, carbohydrates, glycosides, resins, saponin, flavonoid, alkaloids, steroids and phenol. The acute oral toxicity study showed no mortality up to a dose of 3000 mg per kg body weight. The presence of plant chemicals revealed the medicinal values and the non toxic property of the plant indicated the value of the plant as medicine. Thus we can conclude that, the root of the plant can be used as a safe drug against many diseases.

KEY WORDS: Clitoria ternatea, phytochemical analysis, acute oral toxicity, methanolic extract.

INTRODUCTION
Clitoria ternatea is a vigorous, strongly persistent, herbaceous perennial legume. Almost all parts of this plant are reported to have medicinal properties. Flowers of this plant has been using in a number of religious purposes since the ancient times. The plant has been using traditionally to treat infertility, worm infestation, skin disease, tonsillitis, appetite, digestant, vermicide, cough, asthma etc. Many of the medicinal values are evaluated by many workers such as Anthelmintic; Anti hyperglycemic; Anti inflammatory; Anti diarrhoeal; Anti oxidant; hepatoprotective; Immunomodulatory; Anti histamic; cholinerigic activity and many more. C. ternatea is reported to be a good “Medhya” (toning the brain) drug mainly used in the treatment of “Masasika” roga (mental illness), but it is also said to be useful in hectic fever, severe bronchitis, asthma and remedy for snakebite and scorpion sting. A preliminary study using fresh flowers of C. ternatea showed hypoglycemic and hypolipidemic effects. The present study was carried out to investigate the preliminary phytochemical analysis and acute oral toxicity of root in mice.

MATERIALS AND METHODS
Plant materials
The whole plant of the plant was collected from the local garden and made herbarium. The herbarium was identified for authenticity and preserved in the department of Botany, Gauhati University, Assam, India. For the analysis, fresh roots of C. ternatea were collected and washed properly to remove all the debris and soil. The roots were then shed dried and made powder in a mechanical grinder. This material was used in the study.

Extraction
The powdered roots were soxhlet-extracted with Methanol. The extract, on removal of solvent in vacuum, gave a reddish brown semisolid residue (yield: 6.6 % w/w).

Animals
Swiss albino mice used in the present study were obtained from the Animal House of the Department of Zoology, Gauhati University, Assam, India. Animals were bred in our own laboratory facility. They were maintained under uniform conditions of natural photoperiod (12hrs light/dark cycle). Mice had free access to food and water. Experiments were conducted using healthy adult Swiss albino mice of approximately 3 months of age and weighing 20-25gm.

Preliminary phytochemical analysis
Phytochemical screening procedures were performed using standard procedures.[12, 13, 14]

- **Test for Proteins**: Few drops of nitric acid were added by the sides of the test tube very gently to 1 ml methanol extract. Formation of yellow colour indicated the presence of protein in the sample (Xenthroprotein test).
- **Test for carbohydrates**: 1 ml each of Fehling A and Fehling B were added in diluted extract and heated for 30 minutes and observed for the formation of brick red colour.
- **Test for Saponins**: Five milliliter of distilled water was added to the methanol extract and observed for turbidity.
- **Test for Tannins**: 5 ml of 45% ethanol was added to 2 g of the ground sample and boiled for 5 min. The mixture was cooled and filtered. Then 3 drops of lead sub acetate solution was added to 1 ml of the filtrate. A gelatinous precipitates were observed which indicates the presence of Tannins. Another 1 ml of the filtrate was added 0.5 ml of bromine water. A pale brown precipitates were observed indicating the presence of Tannins.
- **Test for Steroids**: 0.5 g of methanol extract was added to 5 ml of distilled water in a test tube. The solution was shaken vigorously and observed for a persistent froth. The frothing was mixed with 3 drops of Olive oil and shaken vigorously after which it was observed for the formation of an emulsion.
- **Test for Flavonoids**: 0.5 g of the macerated sample of was introduced into 10 ml of ethyl acetate and heated in boiling water for 1 min. The mixture was then filtered. 4 ml of the filtrate were shook with 1 ml of 1% aluminum chloride solution and kept. Formation of a yellow colour in the presence of 1 ml dilute Ammonia solution indicated the presence of flavonoids.
- **Test for alkaloids**: 5 gm of ground material was extracted with 10 ml Ammonical Chloroform and 5 ml chloroform. The mixture was filtered and the filtrate was shaken with 10 drops of 0.5 M Sulphuric acid. Creemish white precipitate was observed for the presence of Alkaloids.
- **Tests for Steroids**: 2 ml of acetoc anhydride was added to 0.5 g of methanol extract and 2 ml of Sulphuric acid was added by the sides of the test tube and observed for the colour change from violet or blue-green.
- **Test for Phenols**: Methanol extract was taken in a test tube and mixed with distilled water and warmed. To this 2 ml f Ferric

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The plant has many medicinal values and has been in use from the ancient times. The present study revealed the presence of phytochemicals like Resins, Saponin, Flavonoid, Alkaloids, Steroids and Phenol. All these phytochemicals help in preventing many diseases. It should be noted that steroidal compounds are of importance and interest in pharmacy due to their relationship with such compounds as sex hormones. The presence of protein, glycosides and carbohydrate also indicate the palatability of the material. The root has been evaluated for its medicinal values, so it is essential that the plant should not have any toxicity. The acute oral toxicity study showed no toxicity up to a range of 3000 mg/kg body weight. Therefore, the oral administration of the root of the plant will not affect the animal in terms of its mortality. Hence the plant here can be seen as a potential source of useful drugs.

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REFERENCES

Table 1: Results of the preliminary phytochemical study:

<table>
<thead>
<tr>
<th>Sl no</th>
<th>Phytochemicals</th>
<th>Result</th>
</tr>
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<tbody>
<tr>
<td>1.</td>
<td>Protein</td>
<td>+ve</td>
</tr>
<tr>
<td>2.</td>
<td>Carbohydrate</td>
<td>+ve</td>
</tr>
<tr>
<td>3.</td>
<td>Resins</td>
<td>+ve</td>
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<tr>
<td>4.</td>
<td>Tannins</td>
<td>-ve</td>
</tr>
<tr>
<td>5.</td>
<td>Saponin</td>
<td>+ve</td>
</tr>
<tr>
<td>6.</td>
<td>Flavonoids</td>
<td>+ve</td>
</tr>
<tr>
<td>7.</td>
<td>Alkaloids</td>
<td>+ve</td>
</tr>
<tr>
<td>8.</td>
<td>Steroids</td>
<td>+ve</td>
</tr>
<tr>
<td>9.</td>
<td>Phenols</td>
<td>+ve</td>
</tr>
<tr>
<td>10.</td>
<td>Glycosides</td>
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