PHARMACOLOGICAL EVALUATION FOR THE PRESENCE OF TOTAL SUGAR IN THE LEAVES OF CATHARANTHUS ROSEOUS.

J. Aparajita*, Arun kumar singh, U.K Chauhan, Naghma Praveen, Dharmendra kumar
T.M Bhagalpur University, P.G Department of Botany, Bihar, India, 812001.

ABSTRACT
Catharanthous roseous is a widely distributed variety of plant known for its medicinal value. The whole part of the plant possess anti-diabetic properties whether roots, leaves, stem, or flowers and basic principle for its use in diabetic treatment is due to its anti-oxidant properties. The leaves of the plant were shade dried and powdered and further an ethanolic extract of the powdered form was prepared. Further this was taken for estimation of total sugar by phenol-sulphuric acid method. Immature, half mature, full mature leaves were estimated for the presence of total sugar and was found that immature leaf contained more amount of total sugar. The purpose of study is to find total sugar content in the sample for pharmacological purpose.

KEYWORDS: Anti-diabetic, Anti-oxidants, total sugar, phenol sulphuric acid method.

INTRODUCTION
Diabetes mellitus is a metabolic disease as old as mankind and its incidence is considered to be high (4–5%) all over the world (Pickup and Williams, 1997). In spite of the introduction of hypoglycemic agents, diabetes and related complications continue to be a major medical problem. Since time immemorial, patients with non-insulin requiring diabetes have been treated orally in folk medicine with a variety of plant extracts. In India a number of plants are mentioned in ancient literature (Ayurveda) for the cure of diabetic conditions known as ‘madhumeha’ and some of them have been experimentally evaluated and the active principles isolated (Chopra et al., 1956; Rajashekharan and Tuli, 1976; Chattopadhyay et al.,1993; Pugazhenthi andMurthy,1996;Chattopadhyay, 1999; Joy and Kuttan,1999) Cajtharanthus roseus belonging to family Apocynaceae is known with various names in India and all over the world. Hot water decoction of the leaves and/or the whole plant is used for treatment of diabetes in several countries i.e. Brazil, Cook Islands Dominica, England, Jamaica, Mozambique, Pakistan, Taiwan, Thailand and West Indies (Don, 1999). In India seven flowers/leaves are used at a time whereas in The Cook Islands 18 leaves boiled in a kettle of water and in The West Indies roots of plants
infused in whiskey are used traditionally. Preliminary reports indicate blood glucose lowering activity in alcoholic extract of leaves (Ghosh and Gupta, 1980; Chattopadhyay et al., 1991).

**MATERIALS AND METHODS**

**PREPARATION OF SAMPLE**

Different leaf samples (immature, half mature and full mature leaf) of *Catharanthous roseous* were collected from the nursery of Rewa Agricultural college and were shade dried. These shade dried leaves were further powdered. About one and half kg of leaf powder were soaked in one litre of ethanol and kept for 48 hrs in a glass jar with the lid closed. Further with the help of muslin cloth, soaked powder was squeezed and liquid extract was obtained. Then this liquid extract was spread on petri plate and left for water to be evaporated and lastly dried powder was scratched and stored in glass bottle for further use. This process was carried for all the leaf stages.

**ESTIMATION OF TOTAL SUGAR**

Phenol-sulphuric acid method described by Dey was used to estimate total sugars. The plant material was suspended in 20ml of 90% ethanol in 50mL test tube. The test tubes were sealed with cork and the suspension was incubated for one hour in hot water bath maintained at 60°C. The extract was filtered and the filtrate was collected in 25ml capacity volumetric flask. The residue was re-extracted with another 10ml volume of 90% ethanol. Both the fractions were collected and final volume was made 25ml with 90% ethanol. For the estimation, 0.2ml plant extract was taken in a test tube and volume was made 1ml with distilled water. 1ml (5%) phenol was carefully added and mixed thoroughly. To these test tubes, 5ml concentrated sulphuric acid (analytical grade) was added rapidly but very carefully. This was mixed thoroughly by vertical agitation with a glass rod. The mixture was cooled at room temperature in air and the absorbance was recorded at 485nm against blank containing distilled water instead plant extract. The amount of soluble sugars was estimated with the help of standard curve of glucose (0.1mg/ml) and expressed in g.100g-1dry tissue.

**RESULT AND DISCUSSION**

The quantitative biochemical estimation of total sugar of leaves of anti-diabetic plant *Catharanthous roseous* conducted and results are as given in the table below. As table reveals that amount of total sugar is highest in immature leaf which is in the range of 14.146±1.440.
Quantitative estimation of total sugar in the leaves of *Catharanthous roseous*

<table>
<thead>
<tr>
<th>Serial number</th>
<th>Plant taken</th>
<th>Parameter</th>
<th>Immature leaf</th>
<th>Mature leaf</th>
<th>Full mature leaf</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><em>Catharanthous roseous</em></td>
<td>Total sugar</td>
<td>14.146±1.440</td>
<td>9.745±1.783</td>
<td>8.486±1.440</td>
</tr>
</tbody>
</table>

A chart representing mean (μg/mg) and S.E from the mean of total sugar content present in 1) Immature leaf 2) Mature leaf and 3) Full mature leaf of anti-diabetic plant *Catharanthous roseous*.

**CONCLUSION**

The present evaluation of biochemical parameter total sugar will be helpful while standardizing the drug (catharanthous leaves) for its various pharmacological potentials such as its use as anti-diabetic agent and to check the adulteration in natural valuable drug at the time of consumption for desired pharmacological effect.

**REFERENCES**


---

**For Correspondence**

**J. Aparajita**

Email: janu.aparajita@gmail.com