INTRODUCTION

*Peltophorum pterocarpum* (Copperpod, Golden Flamboyant, Yellow Flamboyant, Yellow Flame Tree, Yellow Poinciana and Radhachura in Bangla; Synonyms: *Peltophorum inermis* and *Peltophorum ferrugineum*) is a family of Fabaceae native to tropical southeastern Asia and a popularly ornamental tree grown around the world. It is a deciduous tree growing to 15–25 m (rarely up to 50 m) tall, with a trunk diameter of up to 1 m.

The leaves are bipinnate, 30-60 cm long, with 16-20 pinnae, each pinna with 20-40 oval leaflets 8-25 mm long and 4-10 mm broad. The flowers are yellow, 2.5-4 cm in diameter, produced in large compound racemes up to 20 cm long. The fruit is a pod 5-10 cm long and 2.5 cm broad, red at first, ripening black, and containing one to four seeds. Seeds begin to flower about after four years [1, 2].

The plant is native to tropical southeastern Asia and northern Australasia, in Sri Lanka, Thailand, Vietnam, Indonesia, Malaysia, Papua New Guinea, Philippines and the islands of the coast of Northern Territory, Australia [1,3]. The plant is also found in different regions of India including Birbhum District, West Bengal. The wood of the plant is wide variety of uses, including cabinet-making [4] and the foliage is used as a fodder crop [1].

Different parts of this tree are used to treat many diseases like stomatitis, insomnia, skin troubles, constipation, ringworm and its flower extract is known to be a good sleep inducer and used in insomnia treatment [5-7]. Its bark is used as medicine for dysentery, as eye lotion, emboction for pains and sores. The traditional healers use the leaves in the form of decoction for treating skin disorders. Stem infusion of *P. pterocarpum* (DC.) Baker ex K. Heyne used in dysentery, for gargles, tooth powder and muscular pain [8]. Flowers are used as an astrigent to cure or relieve intestinal disorders after pain at childbirth, sprains, bruises and swelling or as a lotion for eye troubles, muscular pains and sores [9].

The taxonomical classification of *Peltophorum pterocarpum* is given below:

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Plantae</th>
</tr>
</thead>
<tbody>
<tr>
<td>Division</td>
<td>Magnoliophyta</td>
</tr>
<tr>
<td>Class</td>
<td>Magnoliopsida</td>
</tr>
<tr>
<td>Sub-class</td>
<td>Rosidae</td>
</tr>
<tr>
<td>Order</td>
<td>Fabales</td>
</tr>
<tr>
<td>Family</td>
<td>Fabaceae</td>
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<tr>
<td>Sub-family</td>
<td>Caesalpinioideae</td>
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</tbody>
</table>

The present study focuses on phytochemical screening of *Peltophorum pterocarpum* carried out. *Peltophorum pterocarpum* (belonging to Fabaceae family) regarded as one of the most significant plant species in traditional system of medicine. The plant is used in different parts of the world for the treatment of several ailments like stomatitis, insomnia, skin troubles, constipation, ringworm, insomnia, muscular pains, sores, and skin disorders and is the source of a diverse kind of chemical constituents such as alkaloids, fatty acids, amino acids, terpenoids, phenolics, flavonoids, alkaloids, steroids etc. The presence of various bioactive compounds confirms the application of *P. pterocarpum* for various ailments by traditional practitioners. However, isolation of individual phytochemical constituents may proceed to find a novel drug.

**Key words:** phenols, saponin, flavonoids, quinones, steroids.

**MATERIALS AND METHODS**

**Preliminary phytochemical screening**

The phytochemical qualitative chemical composition of flower extract of *P. pterocarpum* were analyzed using commonly employed precipitation and coloration to identify the major natural chemical groups such as steroids, reducing sugars, alkaloids, phenolic compounds, saponins, tannins, flavonoids, amino acids and glycosides were performed by the standard method. General reactions in these analyses revealed the presence or absence of these compounds in the crude extracts tested.

**Collection of plant material**

Fresh flowers of *P. pterocarpum* were collected from different places in Chennai. The flowers were washed thoroughly with normal tap water followed by sterile distilled water. Then the flowers were shade dried at room temperature. Flowers were crushed to powder using grinding machine. The powdered sample was analyzed for qualitative inorganic compounds.

**Preparation of the plant extract**

Preparation of the extracts was done according to a combination of the methods prescribed by Pizzale et al., 2002 [10] and Lu and Foo, 2001 [11]. The dried flower powder of *P. pterocarpum* plant materials were extracted with ethanol (75%), acetone, chloroform, petroleum ether and aqueous extract for 1 minute using an ultra turax mixer (13,000 rpm) and soaked overnight at room temperature. The extracts were then filtered through what man No.1 paper in a Buchner funnel. The filtered solution was evaporated under vacuum in a rota- evaporator at 40°C to a constant weight and then dissolved in respective solvents. The concentrated extracts were stored in an airtight container in the refrigerator below 10°C.

**Phytochemical screening of *P. pterocarpum* flower extracts**

The phytochemical screening of flower extracts was assessed by standard methods [12-14]. Phytochemical screening was carried out on the flower extracts using different solvents to identify the major natural chemical groups such as tannins, saponins, flavonoids, phenols, terpenoids, alkaloids, glycosides.
cardiac glycosides, coumarins and steroids. General reactions in these analyses revealed the presence or absence of these compounds in the flower extracts tested.

PRELIMINARY PHYTOCHEMICAL ANALYSIS

Test for Tannin
1 mL of flower extract was taken in a test tube. To that 1 mL of 5% ferric chloride was added. Formation of greenish black colour indicates the presence of tannin.

Test for Saponin
To 1 mL of flower extract was added to 2 mL of distilled water in a test tube. The solution was shaken for 15 minutes observed for stable persistent foam of about 0.5 cm layer indicates the presence of saponin.

Test for Flavonoid
To 1 mL of 2N NaOH was added to 1 mL of flower extract. Appearance of yellow colour indicates the presence of flavonoid.

Test for Quinone
To 1 mL of flower extract 1.5 mL of conc. sulphuric acid was added. Solution was observed for the formation of red colour indicates the presence of quinone.

Test for Cardioglycoside (kellerkillani test)

RESULT AND DISCUSSION

<table>
<thead>
<tr>
<th>Phytochemicals</th>
<th>Aqueous Extract</th>
<th>Ethanolic Extract</th>
<th>Chloroform Extract</th>
<th>Acetone Extract</th>
<th>Petroleumether Extract</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tannin</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>++</td>
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<tr>
<td>Saponin</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
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<tr>
<td>Flavanoid</td>
<td>+</td>
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<td>+</td>
<td>++</td>
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<tr>
<td>Quinone</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>++</td>
<td>+</td>
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<tr>
<td>Cardioglycoside</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
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<tr>
<td>Terpenoid</td>
<td>+++</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
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<tr>
<td>Phenol</td>
<td>+++</td>
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<td>+</td>
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<tr>
<td>Coumarin</td>
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<td>+</td>
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<tr>
<td>Steroid</td>
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<tr>
<td>Alkaloid</td>
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<td>+</td>
<td>+</td>
<td>-</td>
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<tr>
<td>β-cyanin</td>
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<td>+</td>
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<td>+</td>
</tr>
</tbody>
</table>

(+) Presence of phytochemicals; (−) Absence of phytochemicals

DISCUSSION

The results of the preliminary phytochemical analysis revealed that the presence of secondary metabolites like phenols, saponin, flavonoids, quinones, steroids, coumarins, tannins, saponins, terpenoids and alkaloids, in the flowers of *P. pterocarpum*. This phytochemical screening aids as an initial step for future determination of its activity like antioxidant, anticancer, antiinflammatory, antimutagenic etc.

The phytoconstituent was rich in ethanolic and acetone extract of flowers of *P. pterocarpum* Phytochemical constituents such as tannins, flavonoids, alkaloids and several other aromatic compounds or secondary metabolites of plants serve as defense mechanism against predation by many microorganisms, insects and herbivores. The curative properties of medicinal plants are perhaps due to the presence of various secondary metabolites such as alkaloids, flavonoids, glycosides, phenols, saponins, steroids etc [15].

It may be concluded that the medicinal plants are very useful both for food and dye. The present plant of study may be used to cure some common diseases.

All the 5 solvents i.e ethanol, acetone, chloroform, Petroleumether and Aqueous out of this acetone and ethanolic extraction of *P. pterocarpum* show positive tests for few phytochemicals, some chemical components cant extract some solvents. The results are shown in table 1. Ethanolic extracts of the plant show positive results for many number of tests, indicates that ethanol is used as a best solvent for extraction of phytochemicals.

In these screening process alkaloids, tannins, saponins, flavonoids and terpenoids, glycosides, phenols shows different types of results in different solvents. The medicinal value of plants lies in some chemical substances that have a definite physiological action on the human body. Different phytochemicals have been found to possess a wide range of activities, which may help in protection against chronic diseases. Alkaloids protect against chronic diseases. Saponins protect against hypercholesterolemia and antibiotic properties [16]. Steroids and triterpenoids show the analgesic for central nervous system activities.

Thus the plant studied can be used as a potential source of new useful drugs. The phytochemical characterization of the extracts, the isolation of responsible bioactive compounds and their biological activity are necessary for future studies.

CONCLUSION

The species have been screened for phytochemical constituents seemed to have the potential to act as a source of useful drugs and also to improve the health status of the consumers as a result of the presence of various compounds that are vital for good health. This plant can be further explored for its secondary
metabolites which could be utilized as dye, cosmetics and therapeutics.

REFERENCES

1. www.google.co.in *Peltophorum pterocarpum* (Dc) Hayne, Houerou.