

**PRELIMINARY PHYTOCHEMICAL SCREENING IN LEAVES OF  
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**ABSTRACT**

The present study was designed with an aim of identify in the phytochemical components are present in the Leaf extract of *chomelia asiatica* belonging to the family Rubiaceae. The five different solvents were used to separate the active components in the plant extract. The observation of the present study showed that the presence of carbohydrate, alkaloids, flavonoids, phenol, glycosides, steroids, saponins and tannin. Methanol solvent were exhibited to give the highest extract value than the other solvents.

**KEYWORDS:** *Chomelia asiatica*, Phytochemical, Soxhlet.

**INTRODUCTION**

Plants as the source of medicine is prevalent in developing countries where traditional more disposed to traditional ways of treatment because of the easy availability and cheaper cost. It is estimated that 80% of the black population consulting with traditional healers.<sup>[1]</sup> Medicinal plants are the good importance to the health of individuals and communities. The medicinal value of plants lies some chemical substances that produce a definite physiological action on the human body. The most important of these bioactive constituents of plants are alkaloids, tannins, flavonoids, and phenolic compounds. Many of these indigenous medicinal plants are used as spices and food plants. They are also

sometimes added foods for medicinal purposes.<sup>[2]</sup> Natural products continue to play an important role in the discovery and development of new pharmaceuticals. Phytochemicals like alkaloids, tannins, flavonoids, and phenolic compounds have a important role in the health care system.<sup>[3]</sup>

Medicinal plants are nature's price less gift to human. The development in the field of modern medicine temporarily subdued the traditional herbal medicine. But it has now staged a comeback and a herbal renaissance is blooming across the world.<sup>[4]</sup> Traditional medicines are used by about 60% of world's population. These are not only used for primary health care in rural areas of developing countries but also in developed countries as well where modern medicines are predominantly used<sup>[5]</sup> there are about 45,000 plant species in India.<sup>[6]</sup> India is the largest producers of medicinal herb and its known as medical garden of the world. In india 70 % of population is dependent on the traditional system of the medicine-Ayurveda. Phytochemical screening is presences of alkaloids, carbohydrate, glycosides, flavonoids, saponins, terpenes and steroids some of which chemical compounds have been associated to antibacterial activities and thus have curative properties against pathogens.<sup>[7]</sup> Phytochemicals, chemical compounds that occur naturally in plants are responsible for color and organoleptic properties, such as the deep purple of blueberries and smell of garlic. The term is generally used to refer to those chemicals that may have biological significance but are not established as essential nutrients.

## MATERIALS AND METHODS

### Collection of plant materials

The fresh leaves of *chomalia asiatica* were shade dried at room temperature for 15 days.

### Preparation of extracts

The samples were grind into powder and stored. The powdered plants were used for the extraction procedure. About 50 g of powdered material was extracted in soxhlet extraction apparatus with 250 ml of each of the following solvents; petroleum ether, chloroform and methanol. After extraction the solvent is removed, typically by means of a rotary evaporator, yielding the extracted compound. Then weighed the extractive value of the different solvent.

## QUALITATIVE PHYTOCHEMICAL ANALYSIS OF LEAF EXTRACT

The above obtained extracts were subjected to analyze the various plant constituents qualitatively. The tests were as follows.

**1) Detection of Carbohydrate: (Molisch's test)**

A minimum amount of extracts were suspended in 5ml of distilled water. The suspension was subjected to the following chemical test. The extracts were treated with 2-3 drops of 1% alcoholic alpha naphthal and 2ml of concentrated Sulphuric acid was added along the sides of the test tube. The formation of purple ring between two layers, which shows the presence of carbohydrates.

**2. Detection of Glycosides: (Legal's test)**

Minimum quantities of the extracts were hydrolyzed with Hydrochloric acid for few minutes on a water bath and the hydrolyze was subjected to the following tests.

To the hydrolyze 1ml of pyridine and few drops of sodium nitroprusside solution were added and then it was made alkaline with sodium hydroxide. The pink color changes into red shows the presence of glycosides.

**3) Detection of Protein and Amino acid (Millon's test)**

A small quantity of extract was dissolved in few ml of water and they were subjected to following test. The extracts were treated with Million's reagent. The precipitate was formed with the extract, which shows the presence of proteins.

**4) Detection of Fixed oils and Fats**

Few drops of 0.5N alcoholic potassium hydroxide was added to the extracts with few drops of phenolphthalein solution. Later the mixture was heated in a waterbath for 1-2 hrs. The soap formation indicates the presence of fat and fixed oils in the alcoholic extracts.

**5) Detection of Gums and Mucilage's**

A small quantity of extract was suspended with water and added Ruthenium red solution. Formation of pink colour shows the presence of gums and mucilage's.

**6) Detection of Alkaloids**

A small quantity of the extract was treated with few drops of dilute hydrochloric acid and filtered. The filtrate was tested with alkaloids reagent such as.

- a) Mayer's reagent (Cream precipitate)
- b) Dragendroff's reagent (Reddish brown precipitate)
- c) Hager's reagent (Yellow precipitate)
- d) Wagner's reagent (Reddish brown precipitate)

**7) Detection of flavonoids**

1. A small quantity of the extracts was dissolved in alcohol and then magnesium metal and concentrated hydrochloric acid was added. Colour change shows the presence of Flavonoids.
2. Small quantities of the extracts were treated with sodium hydroxide solution. Formation of yellow colour indicates the presence of flavonoids.
3. Take small quantities of alcoholic extracts, heated in a water bath after acidification for 15 min. Then extracted with chloroform, to the chloroform layer add few pieces of zinc granules followed by a drop of concentrated HCL (pink colouration).<sup>[8]</sup>

**8) Detection of Phytosterol**

Small quantities of extracts were suspended in 5ml of chloroform separately. The above obtained chloroform solution was subjected to following test. The above prepared chloroform solution were treated with few drops of concentrated sulphuric acid. A bluish green colour solution obtained in chloroform extract shows the presence of phytosterol.

**9) Detection of Tannins-Phenolic compound**

All the extracts were dissolved or suspended separately in minimum amount of water and filtrated. The filtrate was subjected to the following test. To the filtrate few drops ferric chloride was added.(Violet colour precipitate).

**10) Detection of Saponins**

About 2ml of blood was taken two test tubes separately. To one of tubes, equal quantity of water was added. To the other test tube, an equal quantity of methanolic extract dissolved in water was added. A clear red liquid was formed in the first test tube, which indicates that red blood corpuscles were haemolysed. The extract in the second test tube also haemolysed. It indicates the presence of saponins.

**11) Detection of Steroids**

To the methanolic extract add few drops of acetic anhydride and a drop of concentrated Sulphuric acid. Appearance of green or brown colour was the end point.<sup>[9]</sup>

**RESULT AND DISCUSSION**

This study describes the phytochemical components in the extract of *Chomelia asitica*. The identification of these component involves various important investigations, by using the

various solvents such as Methanol, Acetone, Petroleum ether and Chloroform. The phytochemical components are analyzed qualitatively and determined the extractive values. It showed the presence of carbohydrates, alkaloids, flavonoids, aminoacids, phenol, oil and fat, glycosides, steroids, saponins and tannin and showed the absence of Gums and mucilage's (table1) and (table2).

The most the phytochemicals classified as secondary metabolites are produced mainly by the leaves part of the plant, often, their function in the plant is unknown but some phytochemical are known to have structural, functional and potentially active against the plant pathogens.<sup>[10]</sup>

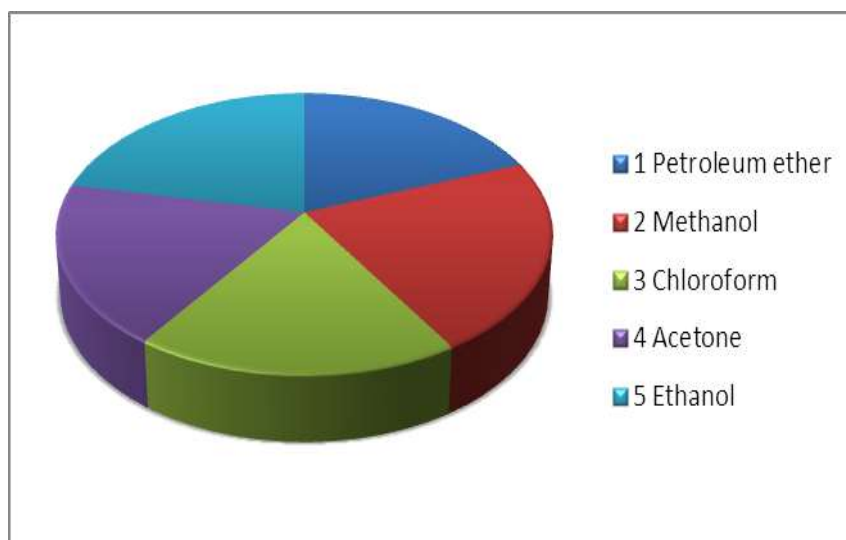
The results of phytochemical screening provide the use of these plants in traditional medical practices. The biological or therapeutic activities of medicinal plants are closely related to their chemical compounds. A variety of herbs and herbal extracts contain different phytochemical with biological activity that can be of valuable therapeutic index.

Traditional method, for example percolation, exhaustive soxhlet extraction, or direct extraction with boiling solvent under reflux is most often used<sup>[11]</sup> components determined qualitatively under various methods.

The present phytochemical study shows the presence of tannins. Tannin has wide uses. For example, tannin is used in food, pharmaceutical and leather industries as well as in agriculture.

**Table 1: Extractive value.**

S.No	Solvent	Dryweight of plant extracts(gm)
1	Petroleum ether	10.5
2	Methanol	12.25
3	Chloroform	10.2
4	Acetone	10.25
5	Ethanol	12



**Table 2: Phytochemical components of different solvent extracts of *Chomelia asiatica* leaves**

C	Plant Constituents	Petroleum ether	Methanol	Chloroform	Ethanol	Acetone
1	Carbohydrate	+	+++	++	++	++
2	Glycosides	+	++	++	+	+
3	Proteins and Amino acids	+	++	+	+	+
4	Fixed oils and Fats	-	++	+	++	+
5	Gums and mucilage's	-	++	++	+	+
6	Alkaloids	+	++	+	+	+
7	Flavonoids	+	++	+	++	+
8	Phytosterols	-	+	+	++	+
9	Tannins and Phenolics	+	++	+	+	++
10	Saponins	+	++	+	+	+
11	Steroids	+	+	++	+	+

## CONCLUSION

In this study the necessity to introduce new and biologically active and safe drugs. Naturally the plants possess biologically effective Phytochemicals. In this the methanol has highly extractive value when compared to other solvents. Methanolic extract shows better Phytochemical components than other extracts.

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