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## Evaluation of phytochemical screening of *Coleus forskohlii* L. leaf extract

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### ABSTRACT

*Coleus forskohlii* L. plant Extract is derived from roots and leaves from *Coleus forskohlii*. Coleus is used in India and China folk medicines and is a traditional digestive remedy. Currently this plants levees and roots are extensively cultivated is Southern and western India. Forskohlii helps to lower blood pressure, dilates the blood vessels. Traditionally claimed to be constructive in the cure of cutaneous affections such as scabies, guinea worm, eczema and herpetic diseases. Conversely, there are no customary scientific reports for its anti-psoriatic activity. Hence, the plant *Coleus forskohlii* has been chosen to establish scientific data for its traditional claim as anti-cancer. In the present study a chemical test performed against the, all the phytochemical constituents for their preliminary screening of each solvent extract of leaf like water, methanol, chloroform, ethyl acetate, and acetone. From the phytochemical investigation of the leaf extracts; the result is revealed the presence of carbohydrates, glycosides, tannins, flavonoids, triterpenoids, and lipids in all the solvent extracts. But phenols are more retain in methanolic leaf extract remain all the phytochemical constituents.

**Keywords:** *Coleus forskohlii*, Phytoconstituents, carbohydrates, leaf extract, traditional

### INTRODUCTION

Since primeval epoch, tribal peoples and research scholars have been exploring the nature particularly plants and plant compounds searching of new medicines. This has resulted in the use of huge number of medicinal plants and phytochemical with curative properties to treat different diseases. Nearly ninety percentage of the world's population relies on conventional medicine as well as traditional medicines for their primary health care, the majority of which involves the use of plant extract drugs and secondary metabolites [1,2]. In India, almost 90% of prescriptions are plant based in the traditional systems of Homeopathy, Ayurveda and Siddha [3]. The study of the plants and plant compounds continues principally for the invention of new secondary metabolites [4]. Phytochemical screening is very essential in finding novel source of therapeutically and industrially precious medicinal compounds and secondary metabolites like phenols, flavonoids, tannins steroids, alkaloids, and terpenoids [5]. Plant medicine has been practiced India wide and is now recognized as an essential building block for primary healthcare for human being in everywhere [6]. Morphological and anatomical character of powdered drug have become an important tool for screening authentic compounds since, adulteration of both drugs and food articles has become most common. Quality control of a crude medicinal drug and pure drug its pharmaceuticals can be attempt by various methods of evaluation depending upon the morphological and anatomical studies of the crude drugs and their and biological, chemical, physical and behavior [7].

Plants are rich in a great diversity of phytocompounds such as phenolic acids, lignin, flavonoids, tannins, and other small compounds [8]. Its tuberous roots were found to be rich source of forskolin (Coleonol) used as a potential drug for hypertension, bronchitis, respiratory disorder, painful urination, and psoriasis [9] diseases. Clinical studies forskolin also indicate it may have therapeutic benefit in angina and prevention of cancer metastases. *Coleus forskohlii* has been used for treating heart diseases, respiratory disorder, and insomnia, and epilepsy, bronchitis, burning sensation, constipation, intestinal disorder and angina [10].

This plant constitute thousands of natural bioactive compounds are phenolics, tannins, terpenoids, alkaloids, saponin, that may produce health beneficial effect by scavenging free radicals [11]. The present studies show that different solvent plant extract of *Coleus forskohlii* leaf extract contain medicinally important active drugs justifies the use of plant secondary metabolites as traditional medicine for treatment of various diseases. Medicinal plants have limitless ability to synthesize aromatic substances, mostly phenols or their oxygen-substituted derivatives [12] and long remedies for human diseases because

they contain chemical components of therapeutic value [13]. Most of the natural plant products are secondary metabolites and about thousands of such products have been isolated so far. These products are useful as plant defense mechanisms against predation by microorganisms, insects and herbivores [14].

## MATERIAL AND METHODS

The plant material was collected from CIMAP and taxonomically identified and authenticated by, Department of Taxonomy, University College of Saifabad, Osmania University, Hyderabad, Telangana.

### Preliminary phytochemical screening

#### Preparation of the leaf extract

The healthy and disease-free mature leaves of plant of *Coleus forskohlii* L. material were collected and two times washed thoroughly under running pump water, shade dried leaves in open air separately. Powder of the leaf is obtained by grinding the help of motar pistil. About 50g powder of the leaf powder were dissolved separately in 250 ml of different solvents like methanol, chloroform, acetone, ethyl acetate, petroleum ether and water. In conical flasks and then subjected to agitation on a rotary magnetic shaker for about 24-48 hours.

Concentrated plant extracts were preserved in sterilized air tight labeled bottles and preserved in refrigerator at 8 °C until required for

further experimental uses. The plant extract was filtered under reduced pressure using rotary flash evaporator and for further preliminary phytochemical screening

## RESULTS

### Phytochemical Screening of the Leaf Extracts of *Coleus forskohlii*

The phytochemical constituents identified in different solvent extracts of *Coleus forskohlii* are as follows. The phytochemicals steroids, saponins, phenols, flavonoids, alkaloids, and tannins are present poorly in the aqueous extracts of *Coleus forskohlii* leaf whereas the terpenoids, cardiac glycosides, reducing sugars and amino acids, are absent. The methanol extract of leaf showed strong presence of the phenols whereas the saponins, terpenoids are moderately present, the steroids, alkaloids, cardiac glycosides and tannins, are poorly present. In the Chloroform extract poor presence of phenols, steroids. The acetone extract of leaf showed poor presence of phenols, saponins, steroids and cardiac glycosides. Saponins, steroids, phenols and cardiac glycosides are poorly present in the ethyl acetate extract of leaf. (Table 1).

Based on the phytochemical screening it is reported that the *Coleus forskohlii* L leaves are rich in phenols and moderate presence of saponins is also found.

**Table1:** Qualitative phyto chemical analysis of various leaf extracts of *Coleus forskohlii*

	Phytochemicals	Aqueous	Methanol	Chloroform	Acetone	Ethyl acetate
1	Steroids	+	+	+	+	+
2	Saponins	+	+	-	+	+
3	Phenols	-	+++	+	+	+
4	Alkaloids	+	+	-	-	-
5	Cardiac glycosides	-	++	-	++	-
6	Reducing sugars	+	-	+	-	-
7	Tannins	+	+	-	-	-
8	Amino acids		-	-	-	-

(+++)= strongly present; (+)= poorly present; (++)= moderately present; (-)= absent

## DISCUSSION

Analysis of different leaf extracts of *Coleus forskohlii* L. is advantage for assessment of medicinal and pharmacological efficacies of this plant. Phytochemical investigation of *Coleus forskohlii* leaf extracts revealed mainly the in **Aqueous** leaf extract presence of steroids, saponins, alkaloids, reducing sugars, tannins and amino acids but phenols and cardiac glycosides are absent. In **Methanolic** leaf extract presence of steroids, saponins, phenols, alkaloids, cardiac glycosides, tannins and amino acids but reducing sugars are absent. In **Chloroform** leaf extract presence of steroids, phenols and reducing sugars are present but saponins, cardiac glycosides, tannins and amino acids are absent. In **Acetone** leaf extract presence of steroids, saponins, phenols, cardiac glycosides, but alkaloids, reducing sugars, tannins and amino acids are absent. In **Ethyl acetate leaf** extract presence of steroids, saponins, phenols, but alkaloids, cardiac glycosides, reducing sugars, tannins and amino acids are absent Hence the phytochemical properties in leaves of *Coleus forskohlii* L. are said

to improve the health condition of the rural peoples and also have a use in pharmaceutical and industrial products of commercial purpose.

## CONCLUSION

Today there is growing interest in chemical composition of plant-based medicines and drugs. Several bioactive compounds were isolated and studied for phyto pharmacological activity. During the last three decades, the pharmaceutical industry was made massive investment in pharmacological and phyto chemical researches all over the India as well as all over the world in an effort to discover much more potent plant drugs, rather, a few new drugs. Thus, from the present study the plant leaf extracts of *Coleus forskohlii* shown an abundant production of Phytochemicals as secondary plant compounds and they can be used in the pharmaceutical companies for producing a potent novel drug against various serious ailments and disorders. The results of the phytochemical screening give a basis of its use in traditional and conventional medicine to manage diseases

and disorders. It also contains some biologically active compounds worthy of further investigations.

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