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Phytochemical screening of *Coleus rotundifolius* L. leaf extract

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Abstract
Coleus rotundifolius L. is highly medicinal plant of family Lamiaceae. It is used in various traditional diseases. 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 rotundifolius*, phytoconsituents, carbohydrates, leaf extract, traditional

Introduction
Since long the 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. The plants are rich in a great diversity of phytocompounds such as phenolic acids, lignin, flavonoids, tannins, and other small compounds (Cowan, 1990) [1]. *Coleus rotundifolius* tuberous roots found to be rich source of forskolin (Coleonol) used as a potential drug for hypertension, bronchitis, respiratory disorder, painful urination, and psoriasis (Ammon and Kemper 1982) [2] diseases. It has been used for treating heart diseases, respiratory disorder, and insomnia, and epilepsy, bronchitis, burning sensation, constipation, intestinal disorder and angina (Ammon and Muller, 1985) [3].
This plant constitute thousands of natural bioactive compounds are phenolics, tannins, terpenoids, alkaloids, saponin, that may produce health beneficial effect by scavenging free radicals (Rout *et al.* 2012) [4]. The present studies show that different solvent plant extract of *Coleus rotundifolius* 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 (Geisssman, 1963) [5] and long remedies for human diseases because they contain chemical components of therapeutic value (Chekuri *et al.* 2017) [6].

Material and Methods
The plant material was collected from gardens and taxonomically identified and authenticated by, Dr. M. Salim, Prof. & Head Department of Botany, S.G.S. Govt. P.G. College, Sidhi (M.P.).

Preliminary phytochemical screening
Preparation of the leaf extract
The healthy and disease-free mature leaves of plant of *Coleus rotundifolius 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 8ºC 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 rotundifolius* L.
The phytochemical constituents identified in different solvent extracts of *Coleus rotundifolius* are as follows. The phytochemicals steroids, saponins, phenols, flavonoids, alkaloids, and tannins are present poorly in the aqueous extracts of *Coleus rotundifolius* 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, terpenoidsare 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 rotundifolius* L. leaves are rich in phenols and moderate presence of saponins is also found.

Table 1: Qualitative phytochemical analysis of various leaf extracts of *Coleus rotundifolius*

	Phytochemicals	Aquesous	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 rotundifolius* L. is advantage for assessment of medicinal and pharmacological efficacies of this plant. Phytochemical investigation of *Coleus rotundifolius* leaf extracts revealed mainly 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 rotundifolius* 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 phytochemical 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 rotundifolius* 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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