

# Investigation of Phytochemical Constituents Of Ethanol and distilled water extracts of *Andrographis Paniculata* Plant .

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## ABSTRACT :

The phytochemicals are the chemical compounds which are produced by plants, generally to help them resist fungi, bacteria. Some phytochemicals have been used as poisons and others as traditional medicine. A well-known phytochemicals are the flavonoids, phenolic acids, isoflavones, saponins, carbohydrates, tannins and quinones.

The present analysis was focused on the introductory phytochemical analysis of extraction of ethanol and distilled water extracts of *Andrographis Paniculata* Plant have been calculated. The area was chosen in Chikhaldara area, Dist-Amravati of Maharashtra State. The outcome were clearly specify the existence of Alkaloid, Carbohydrate, Cardiac Glycosides, Phenol, Flavanoids, Saponin, Tanin, Anthocyninine. Thus it will be certainly propose that, this plant can be make use of as an alternative source of useful drug.

**Key words:-** Phytochemical, Anthocyninine, Alkaloid, Carbohydrate *Andrographis Paniculata*, Ethanol, distilled water extracts.

## INTRODUCTION :-

Medicinal plants have lot of potential towards curing many diseases in India. Plant extracts contain various types of bioactive compounds known as phytochemicals. These chemical compounds extracts from plant can be used in treatment as anticancer, antimicrobial, antioxidant, anti-inflammatory agents etc.<sup>1</sup> Different Plants are the source of medication for preventive, curative, protective or promotive purposes.<sup>2</sup>

Petroleum ether and chloroform extracts of *Baccaurearamiflora* leaves revealed the presence of alkaloids, glycosides, carbohydrates, tannins, phytosterols and flavonoids in the preliminary phytochemical screening. Ethanol extract revealed the presence of proteins and saponins. Aqueous extract also revealed the presence of saponins and proteins. The preliminary phytochemical screening of petroleum ether and chloroform extracts of *Microcos paniculata* leaves revealed the presence of alkaloids, glycosides, carbohydrates, tannins, phytosterols and flavonoids. Ethanol extract revealed the presence of proteins and saponins. Aqueous extract revealed the presence of saponins.<sup>3</sup>

It has been studied that phytochemical analysis of bark, leaf and seed that leaf has the highest levels of all secondary metabolites. The phytoconstituents were best extracted in polar solvents and the major phytochemical in bark, leaf and seeds were phenolic compounds. In general, phenolic compounds have antioxidant and anti-inflammatory potential and therefore further studies are to be focused on the response of leaf extract.<sup>4</sup> It has been studied that quantitative analysis of extracts of methanol in *Eucalyptus* leaves revealed an appreciable amount of antioxidant activity.<sup>5</sup> The article that deals with gross morphology, anatomy and preliminary phytochemicals presence of alkaloids, flavonoids, amino acids, proteins and carbohydrates present in medicinal plant *Embeliaribes* Burm. F. which is used in Indian system of medicine.<sup>6</sup> The phytochemical and FTIR Spectral analysis and Antimicrobial Studies of solvent extracts of *Urginea indica* (Roxb.) Kunth (Liliaceae) and *Cyclopeltata* Arn. ex Wight (Menispermaceae), results were clearly revealed that the plant contained different bioactive compounds such as Alkaloids, Anthraquinones, Coumarins, Steroids and Flavonoids compounds were rich in the extracts of *Urginea indica* (Liliaceae) and *Cyclopeltata* (Menispermaceae) are connected with defense mechanism against many microorganisms<sup>7</sup>. Phytochemical analysis was done by using different methods where as tests. The extract from being screened against six microorganisms including fungal strain. The extract exhibits dependence on antioxidant activity. Thus further study required in solution characterization and structural elucidation of specific bioactive compounds in both extracts that may help in the development of new drugs<sup>8</sup>.

Preliminary phytochemical analysis of extraction in distilled water, ethyl alcohol, petroleum ether, Acetone, ethyl acetate, benzene and chloroform of leaves sample of *Alangium Salvifolium* Plant has been studied. The site was selected in Nagthana, Tal-Warud, Dist-Amravati of Maharashtra State. The results were clearly indicate the presence of Alkaloid, carbohydrate, cardiac glycosides, Protein, Saponin, Tanin, Coumarin. Thus it will be assuredly suggest that, this plant can be utilized as an alternative source of useful drug<sup>9</sup>.

*Eucalyptus* has been used as a medicinal plant from ages because of its various properties. The phytochemical content of *Eucalyptus* leaves was analyzed by Soxhlet extraction of the dried leaves using methanol and acetone. Maximum amount of phytochemicals present in *eucalyptus* leaves were retained in methanolic extract. The methanolic extract contained quinones, saponins, carbohydrates, tannins, phenols, flavonoids & fat while in the acetonetic extract quinones, flavonoids & fat was present<sup>10</sup>. In the phytochemical analysis main chemical part obtained from *Artemisia annua* is a hydrophobic sesquiterpene lactone and sharp toxicity studies of *Artemisia annua* in Swiss albino

mice<sup>11</sup>.The leaves part of *Cassine glauca* which is use as a rich source in a herbal medicine with the presence of alkaloid carbohydrates flavonoids phenol cardiac glycoside saponin, tannins , caumarine<sup>12</sup>.Phytochemical screening were performed using commonly employed precipitation and coloration reactions, the methods of Harbone<sup>13</sup>, Trease and Evans<sup>14</sup> to assess the qualitative chemical composition of plant crude extracts were used to identify the major secondary metabolites like Alkaloids, Flavonoids, Saponins, Carbohydrate, Protein, Phenols etc.

## EXPERIMENTAL:-

### Preparation of sample: -

Before picking the whole sample plant, the soil was moistened. The sample was washed smoothly by distilled water, and then dried out at room temperature in a shed. Sample was crushed in pestle-mortar to segregate fine powder. This powder was treating as sample powder for preliminary phytochemical analysis. The site was selected Chikhaldaraarea ,Dist-Amravati of Maharashtra State.

### Solvent extraction:-

5 g. portion of powdered plant materials was dispersed in 100 ml of each distilled water and ethanol. The solution was left to stand at room temperature for 24 hrs and was filtered with whatman No. 1 filter paper and that filtrate was used for the Phytochemical Analysis.

### Phytochemical screening :

Phytochemical screening were performed using commonly employed foam, precipitation and coloration reactions, the methods of Harbone<sup>13</sup>, Trease and Evans<sup>14</sup> to assess the qualitative chemical composition of plant crude extracts were used to identify the major secondary metabolites like Alkaloids, Flavonoids, Saponins, Carbohydrate, Protein, Phenols, Sterols, Tannins, Cardiac Glycosides, Terpenoids, Phlobatannins, Coumarins, Amino acids, Quinones, Anthocyanins

Phytochemical screening of *Andrographis Paniculata* plant.

Sr.No	Phytochemicals	Alcohol	Distilled Water
1 A	<b>Alkaloid</b> Wagner Test	-	+
2 A	<b>Test for carbohydrates</b> Molisch'sBenedicts Test	+	+
3 A	<b>Test for cardiac glycosides</b> Keller Kelliani's Test	+	+
4 A	<b>Test for Flavonids</b> Alkaline reagent Test	-	-
B	H <sub>2</sub> SO <sub>4</sub> Test	+	+

C	Lead Acetate Test	-	-
5	<b>Test for Phenols</b>		
A	Ferric Chloride test	-	+
6	<b>Test for Phlobatannins</b>		
A	Precipitate test	-	-
7	<b>Test for Amino Acids</b>		
A	Ninhydrin test (1% ninhydrin Solution in acetone)	-	-
8	<b>Test for proteins</b>		
A	Xanthoproteic Test	-	-
9	<b>Test for saponins</b>		
A	From Test	+	+
10	<b>Test for Sterols</b>		
A	Liebermann-Burchard Test	-	-
11	<b>Test for Tannins</b>		
A	Braymr's Test	+	-
12	<b>Test for Terpenoids</b>		
A	Salkowki's Test	+	-
13	<b>Test for Quinones</b>		
A		-	-
14	<b>Test for Anthocyanine</b>		
A	NaOH Test	+	-
15	<b>Test for Coumarine</b>		
		-	-

**Table no 1:** Phytochemical screening of leaves extract of *Andrographis Paniculata* Plant.

## RESULTS AND DISCUSSION :-

From the above table it is clear that,

1. Alkaloid is present in extract of distilled water and absent in extract of alcohol.
2. Carbohydrate is present in both the extracts of alcohol and distilled water.
3. Cardiac glycosides are present in both the extracts of alcohol, distilled water.
4. (a) Flavonoid are absent in extract of alcohol and distilled water.
  - a. (b) Flavonoid is present in extract of alcohol and distilled water.
  - b. (c) Flavonoid are absent in extracts of ethyl alcohol and distilled water.
5. Phenol is present in extract of distilled water and absent in extract of alcohol.
6. Phlobatannins are absent in extracts of alcohol and distilled water.
7. Amino acid is absent in extract of alcohol and distilled water.
8. Proteins is absent in extract of alcohol and distilled water.

9. Saponins present in extract of alcohol and distilled water.
10. Sterols are absent in extract of alcohol and distilled water.
11. Tannins are present in extract of alcohol and absent in extract of distilled water.
12. Terpenoids are present in extract of alcohol and absent in extract of distilled water.
13. Quinones are absent in extract of alcohol and distilled water.
14. Anthocyanins are present in extract of alcohol and absent in extract of distilled water.
15. Coumarins are absent in extract of alcohol and distilled water.

## CONCLUSION:-

In summary our study confirms that, the plant *Andrographis Paniculata* can be used in a herbal medicine as a rich source of phytochemicals with the presence of Alkaloids, Carbohydrates, cardiac glycosides, Phenols, Flavonoids, Saponins, Tanins, Anthocyanins. Thus this plant can be utilized as an alternative source of useful drug. Further *in Vivo* studies and characterization are needed with the isolated leaves of *Andrographis Paniculata*. In future, the plant *Andrographis Paniculata* could be used as a good pharmaceutical and therapeutic agent. The results are presented in the study.

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