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Analysis of Secondary Metabolites from Infloroscense Extract of *Achyranthus Aspera*

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Abstract: The qualitative study of extract of *AchyranthesAspera* in fluorescence shows the presence of different secondary metabolites. The study of active component of fluorescence of *Achyranthesaspera* was extracted. Plant extract contains several secondary metabolites. The extract was used for different phytochemical test. Test was performed using extract prepared by Soxhlet extraction method. This plant has anti oxidative agent, free radicals, phytoconstituents, and carcinogen detoxification and antioxidant defence system.

Keywords: secondary metabolites, phytochemical test, anti-allergic activity, anti-peroxidative agent, detoxification etc.

I. INTRODUCTION

Achyranthes aspera is a medicinal herb found as a weed throughout India and in tropical area. It is also known as Apamarg, chirchira, chirayata (in Hindi) and Rough Chaff flower in English. Its roots, seeds and infloroscense are mainly used for various therapeutic activities in traditional system of medicine. It is an important medicinal plant used in various diseases like rheumatism, bronchitis, skin disease, fever, dysentery, fertility, and diabetes. This plant has different activities like diuretic, anti-periodic, anti-asthmatic, hepato protective, anti-allergic, anti-tumor, anti-fertility activity and various other important medicinal properties.

The therapeutic properties of medicinal plants are mainly due to the secondary metabolites present in it. The phytochemical constituents of plants are alkaloids, tannins, proteins, phenolic compounds and flavonoids. The present study evaluates the bioactive chemical constituents of these plants which have been used in Indian medicine to treat various disorders.

II. BOTANICAL CLASSIFICATION

- 1) Kingdom – Plantae
- 2) Division - Mangoliophyta
- 3) Class - Mangoliopsida
- 4) Subclass - Caryophyllidae
- 5) Order - Caryophyllales
- 6) Family - Amaranthaceae
- 7) Genus - *Achyranthes*
- 8) Species – *Aspera*

III. SYNONYMS

Latin - *Achyranthesaspera*, Sanskrit –Aghata, Hindi - Latjira, Chirchira

IV. PLANT DESCRIPTION

*Achyranthes aspera*L. (Latjeera) is an erect, annual or perennial herb of about 1-2 meter in height, often with a woody base. Stems are angular, ribbed, simple or branched from the base, often with tinged purple colour. Branches are quadrangular. Leaves are thick, ovate-elliptic, petiolate, flowers are greenish white, in axillary or terminal spikes up to 75 cm long. Seeds are subcylindrical, truncate at the apex, rounded at the base, and reddish brown in colour.

V. TESTING METHODS

A. Collection of Plant

The fresh, healthy, mature plants were collected from roadside area of AKS university campus sherganjatna (M.P.). The plant materials were identified, on the basis of flower and inflorescence part of *Achyranthes Aspera*. The inflorescence were washed and used for the study.

B. Preparation of Extract

The fresh plant parts (inflorescence) were collected and washed with water. The sample were dried under sunlight for seven days after that partially dried in hot air oven at 50 °C for 2, 4 and 6 hour respectively. The dried plant material was powdered with mixer grinder and stored in air tight bags for further use. The extraction was prepared by soxhlet extraction method.

VI. TEST FOR PHYTOCHEMICAL STUDIES

- 1) *Test for Carbohydrates:* Molisch's Test: Take 1ml Extract and add few drop of alfanephtolsolution and Add 2 ml of conc. H2SO4 along the sides of the test tube walls and allow it stand for 2 mins. Formation of violetcolour ring at the junction of two layers, this indicates the presence of carbohydrates.
- 2) *Test for Amino acid and Protein:* Ninhydrin Test: Take 1 ml of extract and add 1 ml of Ninhydrin reagent.heat for 2-3 mins, formation of purple colour indicated the presence of Amino acids.
- 3) *Test for Alkaloids:* Wagner's Test: Take 1ml extract add 4-5 ml of dilHCl shake well and add Wagner's Reagent, formation of brown precipitate indicates the presence of Alkaloids.
- 4) *Test for Phenols:* Phenol Test:Take 1 ml extract and add Ferric chloride solution, formation of yellow precipitate indicates the presence of phenols.
- 5) *Test for Tannins:* Ferric Chloride Test: Take 1 ml extract and add 1ml of 1% Ferric chloride solution. Formation of blue green or brownish green colour indicates the presence of Tannins.
- 6) *Test for Saponins:* Foam Test: Take 1 ml extract, Shake well with water. Formation of honey comb like foam indicates the presence of Saponins.
- 7) *Test for Flavonoids:* Ferric chloride Test: Take 1 ml extract and add 1ml Neutral Ferric chloride solution. Formation of blackish green colour indicates the presence of Flavonoids.
- 8) *Test for Sterols:* Salvoski Test: Take 1 ml extract and add Conc. H2SO4. Formation of wine red colour indicates the presence of Sterols.
- 9) *Test for Glycosides:* Molisch's Test: Take 1 ml extract and add few drop of alfa-nephtolsolution and add 1 ml Conc. sulphuric acid along the sides of the tube. Formation of violetcolour ring at the junction of 2 layers indicates the presence of Glycosides.

VII. RESULTS

The results of the phytochemical screening to test the presence of different secondary metabolites like-phenols, tannins, reducing sugars, glycosides, flavonoids, proteins, carbohydrates and resins in the plant extract of inflorescence are shown in table-

Table 1: Secondary metabolite constituents of inflorescence extract of *A.aspera*(linn)

| SR.NO. | SECONDARY METABOLITES | PHYTOCHEMICAL TESTS | RESULT (A.ASPERA INF.) | |
|--------|-----------------------|------------------------------|------------------------|------------------|
| | | | AQUEOUS EXTRACT | METHENOL EXTRACT |
| 1 | CARBOHYDRATES | MOLISCH TEST | ++ | ++ |
| 2 | PROTEINS | BIURET TEST | -- | ++ |
| 3 | AMINO ACID | NINHYDRIN TEST | -- | ++ |
| 4 | STEROID | LIEBERMANN BURCHARD REACTION | -- | ++ |
| 5 | SAPONIN GLYCOSIDES | FOAM TEST | ++ | -- |
| 6 | FLAVONOIDS | SODIUM HYDROXIDE TEST | -- | -- |
| 7 | ALKALOIDS | MAYER'S TEST | -- | -- |
| 8 | TANNINS | FERRIC CHLORIDE TEST | -- | ++ |
| 9 | PHENOLIC COMPOUNDS | DILUTE NITRIC ACID TEST | -- | ++ |

VIII. CONCLUSION

The influoroscense of achyranthes *aspera* were collected, air dried and converted in powdered material. The achyranthes *aspera* influoroscense shows the presence of different secondary metabolite constituents such as Alkaloids, steroles, proteins, amino-acids, carbohydrates, glycosides, saponin, steroids, flavonoids, phenols, tannins etc. These constituents have medicinal properties. The present study evaluate the bioactive chemical constituents of these plant have been used in Indian medicine to treat various diseases. This study may give the idea to develop a new drug and secondary metabolites from the Achyranthes *aspera* plant.

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