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

Keerti samdariya[1], R. S. Nigam[2], O. P. Rai[3]
[1]*Astt. Prof, Department of biotechnology, AKS University,Satna (M.P.)*
[2]*Dean, Department of Chemistry, AKS University, Satna (M.P.)*
[3]*Prof. Department of Chemistry, Govt. P.G. College, Satna (M.P.)*

Abstract: The qualitative study of extract of AchyranthesAspera influoroscence shows the presence of different secondary metabolites. The study of active component of influoroscence 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 have anti oxidative agent ,free radicals , phytoconstituents , and carcinogen detoxification and antioxidant defence system.

Keywords: secondary metabolites, phytochemical test, antiallergic activity, antiperoxidative agent ,detoxification etc.

I. INTRODUCTION

Achyranthes *aspera* is a medicinal herb found as a weed throughout India and in tropical area. Its also known as Apamarg, chirchira ,chirayata (in Hindi) and Rough Chaff flower in English. Its roots, seeds and influoroscence 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 have different activities like diuretic,anti-periodic, anti-asthmatic, hepato protective, anti-allergic, anti –tumer, 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 evaluate the bioactive chemical constituents of these plant which have been used in Indian medicine to treat various disorders.

II. BOTANICAL CLASSIFICATION

1) *Kingdom* – Plantae
2) *Division* - Mangoliophyta
3) *Class* - Mangoliophsida
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 DISCRIPTION

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 thebase, often with tinged purplecolour .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 subcylindric, 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 sherganjsatna (M.P.). Theplant materials were identified, on the basis of flower and inflorescence part of *AchyranthesAspera*. The inflorescence were washed and used for the study.

B. Preparation of Extract

The fresh plant parts (influoroscence) 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 alfanephtholsolution 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 Flavoniods:* 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:* Salwoski 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-nephtholsolution 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 ofthephytochemical 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)

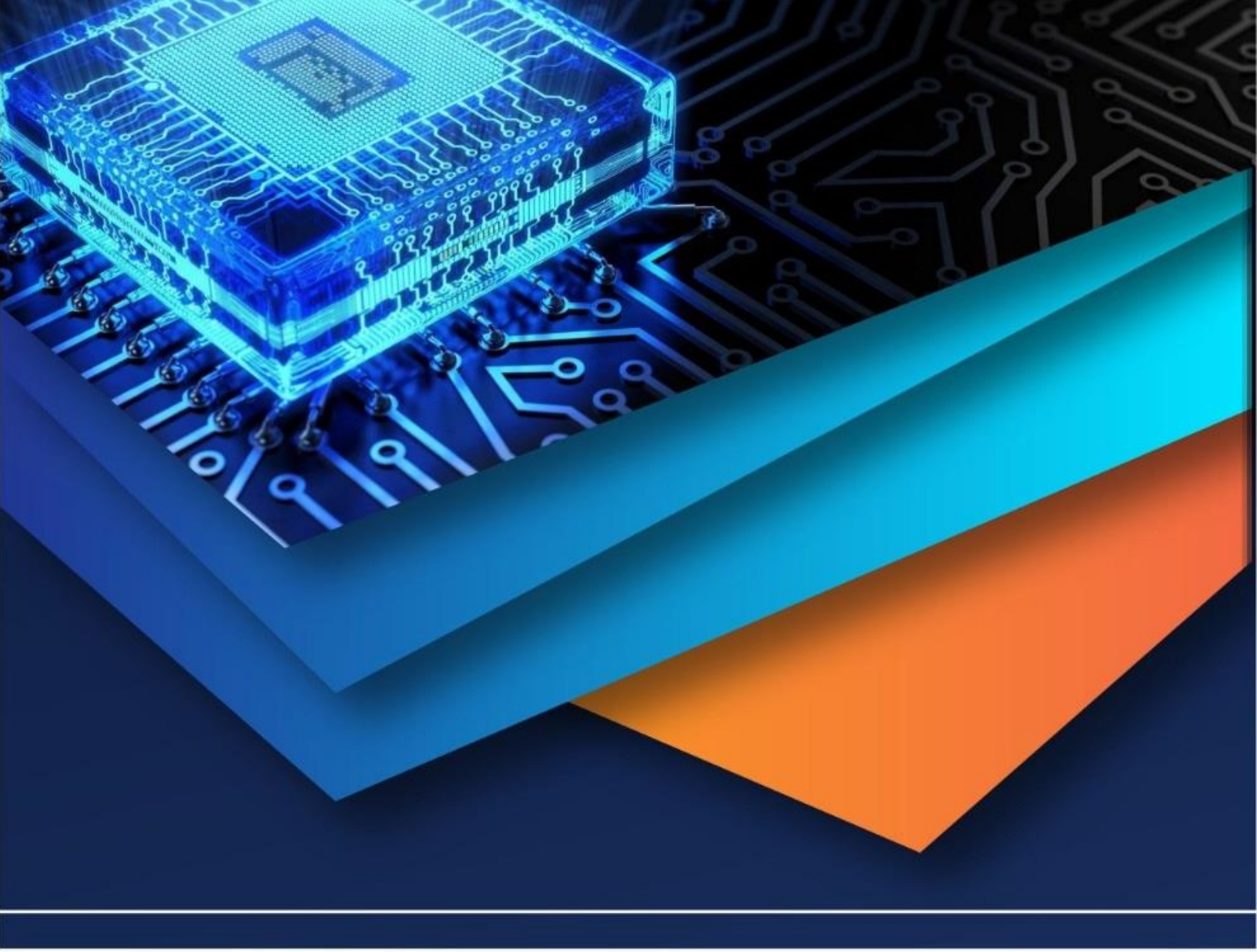
SR.NO.	SECONDARY METABOLITES	PHYTOCHEMICAL TESTS	RESULT (A.ASPERA INF.)	
			AQUEOUS EXTRACT	METHENOL EXTRACT
1	CARBOHYDRATES	MOLISCH TEST	++	++
2	PROTEINS	BIURET TEST	- -	++
3	AMINO ACID	NINHYDRIN TEST	- -	++
4	STEROID	LIEBERMANN BURCHARD REACTION	- -	++
5	SAPONIN GLYCOSIDES	FOAM TEST	++	- -
6	FLAVONOIDS	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.

REFERENCES

[1] Anil Kumar Dhiman. (2006). Ayurvedic Drug Plants.Dhaya Publishing House, Delhi, 72-74.
[2] Chahlia N. (2009). Journal of Medicinal Plants Research, 3 (6) : 481-484.
[3] Charles LekhyaPriya, Gaurav Kumar, loganathanKarthik, KokatiVenkataBhaskaraRao. (2010).Antioxidant activity of AchyranthesasperaLinn. Stem extracts. Pharmacologyonline, 2 : 228-237
[4] Kokate, C.K., (1999). Phytochemical Methods.Phytotherapy78, 126-129.
[5] Iyengar, M.A., 1995. Study of Crude Drugs. 8th Edn.,Manipal Power Press, Manipal, India, Pages: 2.
[6] Ramkrishnan, S., Rajan R. (1994). Text book of medical biochemistry. Orient Longman, New Delhi. India
[7] Srivastav S., Singh P., Mishra G., Jha K. and Khosa R. (2011), Achyranthesaspera- An important medicinal plant: A review. J.Nat. Prod. Plant Resour. 1 (1): 1-4.
[8] MisraTG, SinghRS,Pandey HS et al. Two long chain compounds from AchyranthesasperaPhytochemistry, (1993), 33, 1:221-3



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