

QUALITATIVELY PRELIMINARY PHYTOCHEMICAL ANALYSIS OF SOME DIFFERENT WEED SPECIES

R.R.Saswade

*Jijamata College Science and Arts Bhenda, Tal. Newasa, Ahmednagar

Received: February 25, 2019

Accepted: March 28, 2019

ABSTRACT: : A weed is an unwanted plant growth in a place where some other plants are also growing or no other plant has to grow at all. The plants growing in a wrong place i.e. in agriculture fields are often referred to as weeds. The unwanted plants which are growing in crop fields and competing along with the crop plants and have a short vegetation phase with high reproductive potential. The progress of human beings has been associated with the use of plant resources for their livelihood. Thus a proper knowledge of the phytochemical constituents of the plants is important, because this information will be desirable for synthesis of new pharmaceutical products. The main objective of current investigation was to study the qualitatively preliminary analysis of some different weed species. Discovery of active compounds and their role in curing diseases from this plant leads its importance. The presence of these secondary bioactive phytochemicals signifies the importance of these medicinal plants as an efficient source of therapeutic agent.

Key Words: Preliminary phytochemical analysis, weeds, Ahmednagar.

INTRODUCTION

A weed is an unwanted plant growth in a place where some other plants are also growing or no other plant has to grow at all. The plants growing in a wrong place i.e. in agriculture fields are often referred to as weeds. The unwanted plants which are growing in crop fields and competing along with the crop plants and have a short vegetation phase with high reproductive potential. The progress of human beings has been associated with the use of plant resources for their livelihood. Plants are well known for the primary and secondary metabolites like carbohydrates, Proteins, amino acids and flavonoids, phenolics, glucosides, saponins, tannins and terpenoids etc. respectively. These secondary metabolites important medicinal properties to the plants therefore it is mandatory to resolve the type of secondary metabolites nature and antimicrobial. Their bioactivities are identifying the active components and their side effects and to enhance the purity of the pharmacologically important active compounds. In ancient Indian literature it is observed that every plant on this planet is useful in industry, medicine and allelopathy.

The phytochemicals like flavonoids, alkaloids, amino acids, glycosides, saponins, steroids, tannins and many others present in the plants are the great reservoirs of many new and potential drugs. Phytochemical analysis is now acted as the essential part towards the discovery of useful and novel drugs. Screenings for biological activity using simple bioassays have now been added to give a better identification of the usefulness of weeds. So the present investigation has been taken up to evaluate the presence of different Preliminary phytochemicals from the collected weed species of Ahmednagar.

MATERIAL AND METHODS

Collection and identification of plant material

Weed species were collected from the agricultural fields of Ahmednagar district. The plant samples were identified by Flora. The root portions were cut off and the plants were washed thoroughly under running tap water to free from debris. The leaves and shoot portion of the fresh plant material were chopped into small pieces and dried in shade, finely made powder using Mixer grinder. The leaf powders of the test weeds were stored in polythene bags for the further studies.

Phytochemical Screening

The present study is aimed to provide an inventory of the preliminary phytochemical screening for the detection of various plant constituents. The methodology adopted for the parameter is as follows.

Test for Alkaloids

Wagner's test: A fraction of extract was treated with Wagner's test reagent [1.27 g of iodine and 2 g of potassium iodide in 100 ml of water] and observed for the formation of reddish brown colour precipitate.

Test for Flavonoids

NaOH test: A small amount of extract was treated with aqueous NaOH and HCl, observed for the formation of yelloworange colour.

Test for Tannins

Braymer's test: Few ml of extract was treated with 10% alcoholic ferric chloride solution and observed for formation of blue or greenish colour solution.

Test for Saponins

Foam test: A small amount of extract was shaken with water and observed for the formation of persistent foam.

Test for Glycosides

Legals test

Chloroform (3ml) and ammonia solution (10%) was added to 2ml plant extract. Formation of pink color indicated the presence of glycosides.

Test for Terpenoids

Liebermann – Burchard test: Extract (1ml) was treated with chloroform, acetic anhydride and drops of H₂SO₄ was added and observed for the formation of dark green colour.

Test for Steroids

To 0.5 ml of the plant extract equal volume of chloroform was added and subjected with few drops of concentrated sulphuric acid (H₂SO₄). Appearance of brown ring indicates the presence of steroids

Test for Phenols

Ferric chloride test: The fraction of extract was treated with 5 % ferric chloride and observed for formation of deepblue or black colour.

RESULTS AND DISCUSSION

The Preliminary Phytochemical Analysis of 18 weed species were presented in table-1. These 18 weed species were abundantly available in all crop fields of Ahmednagar. Information collected on chemical analysis of different weed species were present in Table-1. Weeds were subjected to various chemicals such as alkaloids, flavonoids, Glycosides, Phenol, saponins, steroids, tannin and terpenoids are screened and presented. Phenols are reported in *Aervalanata*(Linn.) Juss. and *Argemonemaxicana*L. only. The phytochemicals like alkaloids, saponins, flavonoids and phenolic compounds present in plants are responsible for many biological activities. The five weeds *Aervalanata*(Linn.) Juss., *Argemonemaxicana*L., *Cleome viscosa*L., *Commelinabenghalensis*L. and *Convolvulus arvensis*L., were found to contain Alkaloids, Saponins, Tannins, Steroids and Flavonoids. *Aervalanata*(Linn.) Juss. contain Alkaloids, Saponins, Tannins, Steroids, Flavonoids, Terpenoids and Phenols but the glycosides were absent in *Aervalanata*. In Table -1 all weeds were contain alkaloids except few weeds like *Ageratum conyzoides* Linn, *Alternanthera sessilis* (L.) R.Br., *Cyperus rotundus* L. and *Echinocloacrusgalli*(L.) P. Beauv. In *Aervalanata*(Linn.) Juss.

Table 1: Preliminary Phytochemical analysis of some weed species

Sr. No	Name of the plant	Family	Preliminary Phytochemical analysis							
			Alk	Sap	Tan	Ste	Fla	Ter	Gly	Phe
1	<i>Acalypha indica</i> L.	Euphorbiaceae	+	+	-	+	-	-	+	-
2	<i>Achyranthus aspera</i> L.	Amarantaceae	+	+	+	+	-	-	+	-
3	<i>Aervalanata</i> (Linn.) Juss.	Euphorbiaceae	+	+	+	+	+	+	-	+
4	<i>Ageratum conyzoides</i> Linn	Asteraceae	-	-	-	+	+	-	+	-
5	<i>Alternanthera sessilis</i> (L.) R.Br.	Amarantaceae	-	+	+	+	-	-	-	-
6	<i>Amaranthus spinosus</i> L.	Amarantaceae	+	-	-	+	+	-	-	-
7	<i>Argemonemaxicana</i> L.	Pepavaceae	+	+	+	+	+	-	+	+
8	<i>Bacopamonnieri</i> (L.) Wettst.	Scrophulariaceae	+	+	+	-	-	-	-	-
9	<i>Cardiospermum helicacabum</i> L.	Sapindaceae	+	+	+	-	-	-	-	-
10	<i>Celosia argentea</i> L.	Amarantaceae	+	-	+	-	-	-	-	-
11	<i>Chenopodium album</i> L.	Chenopodiaceae	+	-	+	-	-	-	-	-
12	<i>Cleome viscosa</i> L.	Capparidaceae	+	+	+	+	+	-	+	-
13	<i>Commelinabenghalensis</i> L.	Commelinaceae	+	+	+	+	+	-	-	-
14	<i>Convolvulus arvensis</i> L.	Convolvulaceae	+	+	+	+	+	-	-	-
15	<i>Cynodactylon</i> (L.) Pers.	Poaceae	+	-	-	+	+	+	-	-
16	<i>Cyperus rotundus</i> L.	Cyperaceae	-	+	+	+	+	+	+	-
17	<i>Echinocloacrusgalli</i> P. Beauv	Poaceae	-	+	+	+	+	+	-	-
18	<i>Phyllanthus amarus</i> K.Schum.	Euphorbiaceae	+	-	-		+	+	+	-

Alk = Alkaloids, Sap = Saponins, Tan = Tannins, Fla = Flavonoids, Gly= Glycosides, Phe= Phenols, Ste= Steroids, Ter=Terpenoides,Positive +, Negative -.

CONCLUSION

According to World Health Organization (WHO) the macroscopic and microscopic description of a medicinal plant is the first step towards establishing its identity and purity and should be carried out before any tests are undertaken (Anonymous 1996). Weeds are unwanted and commonly found everywhere. The phytochemical constituents present in weeds act as potential source of useful drugs to improve the health status of humans. Phytochemical surveys are now acted as the first step towards the discovery of useful drugs. Weeds are the richest resource of drugs and useful for the various biological activity. After present investigation it can be concluded that the phytochemical studies of weed species yielded a set of qualitative and quantitative pharmaco-botanical parameters or standards that can serve as an important source of information to ascertain the identity and to determine the quality and purity of the plant material in future studies.

REFERENCES

1. Abbas MN, S A Rana, M Shahid, N Rana, M Mahmood-ul-Hassan, M Hussain. Chemical evaluation of weed seeds mixed with wheat grains at Harvest The J Animal Plant Sci. 2012;22(2):283-288.
2. Anpin Raja, R.D., J.W.Prakash and S. Jeeva (2010). In:P.C.Trivedi, Editor.Ethnic Tribes and Medicinal Plants. Jaipur: Pointer Publishers, pp:28-45.
3. Anpin Raja, R.D., J.W.Prakash and S. Jeeva, J.W.Prakash, M.Johnson and V. Irudayaraje, 2011. Asian Pac.J.Trop.Med.,4:375-378.
4. Balakumar, S., S.Rajan, T.Thirunalasundari and S.Jeeva, 2011 Asian Pac,Jo. Trop. Biomed., Ferozsos (Pvt)Ltd., Lahore, 1st Edition, 121-156.
5. Das M.P. &Dhiraj Kumar (2013), Preliminary phytochemical screening and evaluation of antibacterial effect of *Amaranthuscaudatus*, BioMedRx Vol.1 Issue2. Pg.No.195-198.
6. Kirtikar K.R. and Basu B.D. 1995 Dehradun, India Vol.1, 371-372.
7. Mojab F., Kamalinejad, M., Ghaderi, N., Vahidipour, H., 2003, Iranian Journal of Pharmaceutical Research. Pp 77-82.
8. Pour,B.M. and S. Sasidharan, 2011. Asian Pac.J.Trop. Biomed., 1:189-191.
9. Sastry CST, Kavatheker KY. Plants for reclamation of wastelands. New Delhi, India: Publication and Information Directorate, Council of Scientific and Industrial Research (CSIR).1990; pp.684.
10. Singh MP, Srivastava JL and Panday SN,2003, Published by Daya Publishing House, Delhi, 1st Edition 136-152.
11. Thamaraiselvi P, Lalitha, P Jayanthi. Preliminary studies on phytochemicals and antimicrobial activity of solvent extracts of *Eichhorniacrassipes* (Mart.)Solms. Asian J Plant Sci Res. 2012;2(2):115-122.
12. Vijayalakshmi R, R Ravindhran. Preliminary comparative phytochemical screening of root extracts of *Diospyrusferrea* (Wild.) Bakh and *Aervalanata* (L.) Juss. Ex Schultes. Asian J Plant Sci Res.2012;2(5):581-587.