

Research Journal of Pharmaceutical, Biological and Chemical Sciences

Preliminary Phytochemical Analysis of Weeds in Marathwada Region

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ABSTRACT

The screening and study of twenty leaf powder of different weeds belonging to 15 families and 18 genera for phytochemical constituents was performed using generally accepted laboratory technique for qualitative determinations. The constituents screened for were Alkaloids, Saponins, Tannins, Steroids and Flavonoids. The six weeds *Argemone maxicana* L., *Cleome viscosa* L., *Commelina benghalensis* L., *Convolvulus arvensis* L., *Crotalaria retusa* L. and *Crotalaria sperosa* L. were found to contain Alkaloids, Saponins, Tannins, Steroids and Flavonoids. The *Alternanthera sessilis* (L.) R.Br, ex DC and *Cyperus rotundus* L. were found only tannin.

Key words: Phytochemicals, Weeds, Marathwada region, Alkaloids, Saponins, Tannins, Steroids and Flavonoids.

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INTRODUCTION

In India many unwanted plants so called weeds are very common dominant and wide spread in the various crop fields. They also occupy almost all open spaces. Plant resources have made substantial contribution to human welfare [5]. The progress of human beings has been associated with the use of plant resources especially for the supply of food, fuel, fiber and medicine. In ancient Indian literature it is observed that every plant on this planet is useful in industry, medicine and allelopathy [9]. The phytochemicals like flavonoids, coumarins, amino acids, cyanogenic compounds, glycosides, saponins, steroids, tannins and many others present in the plants are the great reservoirs of many new and potential drugs. The plant resources are the major sources of antimicrobial agents. Phytochemical surveys are now acted as the first step towards the discovery of useful drugs. Plants are the richest resource of drugs of traditional systems of medicine, modern medicines, food supplements, folk medicines, pharmaceutical intermediates and chemical entities for synthetic drugs [1]. Now the tropical rain forests have been identified as a potential source due to diverse richness in flora [2]. Screenings for biological activity using simple bioassays have now been added to give a better identification of the usefulness of weeds. Phytochemical separations are now routinely guided by bioassay which will ensure the isolation of bioactive principles irrespective of whether they belongs to a certain class of compounds or not. Therefore, 20 weeds belonging to 15 different families and 18 generas were collected in view of this survey from the Marathwada region and qualitative investigation was carried out to evaluate the presence of different phytochemicals.

MATERIALS AND METHODS

Collection and Identification

This weed has collected from Nanded district and identified by using “The Flora of Marathwada” by V.N. Naik (1998). Herbarium was prepared and stored in Herbarium Section in the Department of Botany, Yeshwant Mahavidyalaya, Nanded (M.S.). From the collected weeds (leaf) were separated 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.

Bioassay

Leaf powder of different test weeds were used for preliminary screening of phytochemicals such as Alkaloids, Saponins, Tannins, Steroids and Flavonoids. The phytochemicals were determined by standard protocols as described by Jigna et al. in 2007 [3].

RESULTS AND DISCUSSION

The results of Preliminary Phytochemical Analysis of 20 weeds belonging to 15 different families and 18 genera were presented in table-1. The six weeds *Argemone maxicana* L., *Cleome viscosa* L., *Commelina benghalensis* L., *Convolvulus arvensis* L., *Crotalaria retusa* L. and

Crotalaria spesiosa L. were found to contain Alkaloids, Saponins, Tannins, Steroids and Flavonoids. The leaf powders of all weeds were found Alkaloids except *Alternanthera sessilis* (L.) R.Br,ex DC (Amaranthaceae), *Cyperus rotundus* L. (Cyperaceae) and *Calotropis gigantea* (L.) R.Br. (Asclepiadaceae). The Tannins were absent in leaf powder of *Acalypha indica* L.(Euphobiaceae), *Corchorus olitorius* L. (Tiliaceae) and *Amaranthus tricolor* L. (Amaranthaceae). Half of the test weeds mention in table shows the presence of saponins, steroids and Flavonoids.

Table-1. Preliminary phytochemical analysis of leaf powder of some weeds.

Sl. No	Name of weeds	Common name	Family	Preliminary Phytochemical analysis				
				Alk	Sap	Tan	Ste	Fla
1.	<i>Abutilon indicum</i> (L.) Sweet	Shikka	Malvaceae	+	-	+	+	-
2.	<i>Acalypha indica</i> L.	Kokali	Euphobiaceae	+	+	-	+	+
3.	<i>Achyranthus aspera</i> L.	Aghada	Amaranthaceae	+	-	+	+	-
4.	<i>Alternanthera sessilis</i> (L.) R.Br,ex DC		Amaranthaceae	-	-	+	-	-
5.	<i>Amaranthus tricolor</i> L.	Tandulja	Amaranthaceae	+	-	-	+	+
6.	<i>Argemone maxicana</i> L.	Vilayati	Papaveraceae	+	+	+	+	+
7.	<i>Bacopa monnieri</i> (L.)Wettst.	Nir-brahmi	Scrophulariaceae	+	+	+	-	-
8.	<i>Calotropis gigantea</i> (L.) R.Br.	Ruchki	Asclepiadaceae	-	-	+	-	+
9.	<i>Calotropis procera</i> (Ait.) R.Br	Ruchki	Asclepiadaceae	+	+	+	-	-
10.	<i>Cardiospermum helicacabum</i> L.	Madake-phodi	Sapindaceae	+	+	+	-	-
11.	<i>Celosia argentea</i> L.	Kombda	Amaranthaceae	+	-	+	-	-
12.	<i>Chenopodium album</i> L.		Chenopodiaceae	+	-	+	-	-
13.	<i>Cleome viscosa</i> L.	Piwali tilvan	Cleomaceae	+	+	+	+	+
14.	<i>Commelina benghalensis</i> L.		Commelinaceae	+	+	+	+	+
15.	<i>Convolvulus arvensis</i> L.	Wasanwel	Convolvulaceae	+	+	+	+	+
16.	<i>Corchorus olitorius</i> L.		Tiliaceae	+	-	-	-	+
17.	<i>Crotalaria retusa</i> L.	Motha khulkhula	Fabaceae	+	+	+	+	+
18.	<i>Crotalaria spesiosa</i> L.	Chota khu;khula	Fabaceae	+	+	+	+	+
19.	<i>Cynodon dactylon</i> (L.) Pers.	Harali	Poaceae	+	-	+	-	-
20.	<i>Cyperus rotundus</i> L.	Nagarmotha	Cyperaceae	-	-	+	-	-

Alkaloids = Alk, Saponins = Sap, Tannins = Tan, Steroids = Ste, Flavonoids = Fla.

The phytochemicals like alkaloids, saponins, flavonoids and phenolic compounds present in plants are responsible for many biological activities [8]. The importance of alkaloids, saponins and tannins in various antibiotics used in treating common pathogenic strains has

recently been reported by Kubmarawa et al (2007) [4]; Mensah et al., (2008) [6]. 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 antifungal, antimicrobial and other various biological activity.

CONCLUSION

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. We can investigate novel bioactive compounds from weed extracts, which possess antifungal, antibacterial, and several others therapeutic properties. The analysis of phytochemicals which are present in weeds not yet studied. Such type studies will be helpful in future.

ACKNOWLEDGEMENTS

The authors are very thankful to the university Grants Commission (UGC) New Delhi for providing the financial assistance in the form of Rajiv Gandhi National Fellowship. Thanks to the Principal and Head, Department of Botany, Yeshwant Mahavidyalaya, Nanded for providing all necessary facilities.

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