



Pelagia Research Library

European Journal of Experimental Biology, 2015, 5(1):5-7



Phytochemical studies on biodiversity of some weeds in paddy ecosystem

R. Sagaya Giri* and S. Dhanalakshmi

**PG & Research Department of Botany, Kundhavai Naachiyar Govt. Arts. College for Women (Autonomous),
Thanjavur*

PG & Research Department of Botany, Govt. Arts. College, Ariyalur

ABSTRACT

Phytochemicals are non nutritive plant chemicals that contain protective disease preventing compounds. Nowadays, it becomes centre of attraction for the people in the health care profession & pharmaceutical industry. The main intention of this paper is to bring the weeds of the paddy field which has a wide spectrum of phytochemicals into lime light. These weeds are at endangered position due to prolonged application of chemical weedicides to the paddy field. This now create a new ecological problem by upsetting the biotic balance of the environment. So these ecofriendly weed flora are to be conserved and protected.

Key words: paddy, antibacterial activity, ethanol extracts.

INTRODUCTION

India is rich in Biodiversity and is endowed with many useful plants. Out of 2,50,000 plant species, weeds constitute about 250 species which are prominent in agricultural and non-agricultural system. These weeds possess non nutritive plant chemicals that contain protective disease preventing compounds against various microorganism [3]. Nowadays it becomes centre of attraction for the people in the health care profession and pharmaceutical industry.

Many weeds under the present study are economically important as they could be used for fodder, medicine, biofertilizer biomass based energy, soil conservation and other purposes [1,8]. Due to the lack of research and development and failure to evolve a right mechanism to tap the resources, many species are on the verge of extinction or have become endangered position due to prolonged application of chemical weedicides to the paddy field. So there is a need for studying the weed flora with an ecological approach to sustainability of the ecosystem.

MATERIALS AND METHODS

The materials for the present study were collected from paddy fields of Lalgudi, Trichy district, Tamilnadu. Among the different types of weeds, ten weeds which were available in all the paddy fields were collected for phytochemical analysis. Tests 1-8 indicated in Table-1 were carried out with fresh materials consisting of stem, leaves and flowers while the test 1-8 indicated in Table 2 were carried out using 80 ethanolic extracts [4,5].

Table – 1 Test with 80% Ethanolic Extract

S.No	Name of the Plant	1	2	3	4	5	6	7	8
1	<i>Amaranthus viridis</i> Linn.	-	-	-	-	+	+	-	-
2	<i>Ludwigia perennis</i> Linn.	+	-	-	-	-	+	-	-
3	<i>Vernonia cinerea</i> Hess	-	-	+	-	-	+	+	-
4	<i>Eclipta alba</i> Hassak.	+	-	-	-	+	+	+	-
5	<i>Phyla nodiflora</i> (Linn.) Greene.	-	-	-	-	-	+	-	-
6	<i>Stemodia viscosa</i> Roxb.	-	-	-	-	-	-	-	-
7	<i>Striga angustifolia</i> (D.Don) C.J.Salelaha.	-	-	-	-	+	+	-	-
8	<i>Phyllanthus niruri</i> Webster	-	-	-	-	-	+	-	-
9	<i>Commelina bengha lensis</i> Linn.	-	-	-	-	+	+	-	-
10	<i>Alternanthera sessilis</i> . Dc.	+	-	-	-	-	+	-	-

HCL/ Methanol 2. HCN test 3. HOT-water test 4. Junglone test 5. Leucoanthocyanin test 6. Maule test 7. Saponin test 8. Syringin test
Positive - Negative

Table – 2 Test with 80% Ethanolic Extract

S.No	Name of the Plant	1	2	3	4	5	6	7	8
1	<i>Amaranthus viridis</i> Linn.	-	+	-	+	+	+	+	-
2	<i>Ludwigia perennis</i> Linn.	-	+	-	+	+	+	+	-
3	<i>Vernonia cinerea</i> Hess	-	+	-	+	+	+	+	-
4	<i>Eclipta alba</i> Hassak.	-	+	-	+	+	+	+	-
5	<i>Phyla nodiflora</i> (Linn.) Greene.	-	+	-	+	+	+	+	-
6	<i>Stemodia viscosa</i> Roxb.	-	+	-	+	+	+	+	-
7	<i>Striga angustifolia</i> (D.Don) C.J.Salelaha.	-	+	-	+	+	+	+	-
8	<i>Phyllanthus niruri</i> Webster	-	+	-	+	+	+	+	-
9	<i>Commelina bengha lensis</i> Linn.	-	+	-	+	+	+	+	-
10	<i>Alternanthera sessilis</i> . Dc.	-	+	-	+	+	+	+	-

Alkaloid test 2. Flavonoid test 3. Indole test 4. Terpenoid test 5. Carbohydrate test 6. Phenols test 7. Steroids test 8. Tannins tests
+ Positive - Negative

RESULTS AND DISCUSSION

The results of the tests are presented in the table 1 and 2. From the tables, it is clear that though these weeds spread over different families they resemble each other in the presence of carbohydrates, flavonoids, lignins, terpenoids, steroids, phenols and in the absence of cyanogenic glycosides, (except *Glinus oppositifolium*), juglones (except *Ludwigia perennins*) Indoles polyphenolases (except *Vernonia cinerea*), syringinaldehyde, alkaloids and tannins. However, *Eclipta alba*, *Phyla nodiflora*, *Stemodia viscosa* and *Striga angustifolia* showed the presence of saponins.

From the above results, it is evident that these weeds possess various secondary plant products which could be utilized for the benefit of mankind. [2] studied and reported thirteen amino acids from the leaves of *Eclipta alba*. [7] studied the antimicrobial activity of *Stemodia viscosa* and *Striga angustifolia* and reported that these plants possess antimicrobial activity against *Pseudomonas aeruginosa*, *Staphylococcus aureus* and *Candida albicans*. [6] studied the *in vitro* antibacterial activity of leaves of *Phyllanthus niruri* and *Phyllanthus discoids*. These plants extracts showed activity against *Enterococcus spp*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* and *Mycobacterium*.

Species of *Commelina*, *Ludwigia*, *Amaranthus*, *Alternanthera* and *Eclipta* can be used for forage in pastures. *Alternanthera sessilis* is a good fodder and increase the flow of milk in the cattle and is rich in vitamin C, carotene B1 and B2 and various minerals can be used nutritive food for humans.

Species of *Alternanthera*, *Eclipta*, *Commelina*, *Phyllanthus* and *Phyla* are medicinally important and are used to cure night blindness, abdominal disorders, asthma, dysentery, diarrhoea haemorrhage, ulcers, jaundice, piles, wounds and skin diseases.

Majority of the weed species offer soil protection and also are the source of antibiotics and insecticides. When ploughed these species, add nutrients to the soil and increase the organic matter of the field. They also help in reducing erosion and water pollution hazards. Phenolic compounds including catechol tannins exuded into the soil form a protective cover of the soil and checks soil borne diseases.

The present work recommends the exploration, utilization and conservation of weeds for their various medicinal, economical, biological and ecological value.

REFERENCES

- [1] Ambasta S.P., *The useful plants of India. CSIR, New Delhi* **1986..**
- [2] Choudhri, G.N. and Joseph, L. *Sci. cult.*, **1986**, 52 C4:127-129.
- [3] Cowan, M.M. *Plant includes as microbial agents. Clinical microbiology Reviews* **1999**, 12:564-582.
- [4] Gibbs, R.D. *Chemotaxonomy of flowering plants. M.C. Gill Queen's University Press, Montrial* **1984.**
- [5] Harbone, J.B. *Flavanoids as systematic markets in the angiosperms. In Bend 2, G. and Santesson, J. (Edsn) Chemistry in Botanical Classification. Nobel Foundation Slockholm* **1973.**
- [6] Menash, J.L. and Largards, K., *journal of Ethano pharmacology*, **1990**, 28:129-133.
- [7] Meuru, P. *Journal of Ethno pharmacology*, **1998**, 3:121-127.
- [8] Subamaniyan, S. Mohamed Ali, A., and Jayakumar, R. *All about wood control, Kalyani Publishes, New Delhi* **1991.**