

Ethnomedicinal and Ecological studies of some weeds in sugarcane fields of Villupuram district

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ABSTRACT

The present communication pertains to ethnobotany of major weeds of sugarcane fields in Villupuram district, Tamil Nadu. Present study was conducted in ten selected sites of Villupuram district in the sugarcane crop fields. Random quadrat method was adopted for studying phytosociological attributes of weeds. A total of 80 plant species belonging to 25 families were identified, out of which 46 plant species are medicinally important to cure different diseases in human beings directly. Amaranthaceae and Euphorbiaceae was the dominant family seen during observation. Frequency, Relative frequency, Density and Relative density of the species were calculated.

Keywords: Weeds; Sugarcane field; Ethnobotany

1. INTRODUCTION

Plants are to be found everywhere. Man tries to grow only the sort of plants that he wants and the original inhabitants of the soil become useless to him are called as weeds. When land is cultivated to raise crops, weeds spring up naturally along with the crop plants. Quite a number of plants considered as weeds in modern sciences have significant value in ethnobotany. Ethnobotany is a multidisciplinary science defined as the interaction between plants and people. The relationship between plants and human culture is not limited to the use of plants for food, clothing and shelter but also includes their use for religious ceremonies, ornamentation and health care. The World Health Organization (WHO) has estimated that up to 80 % of the world's populations rely on plants for their primary health care (Ramesh, 2008; Akaneme *et al.*, 2008). Weeds are unwanted and undesirable plants growing in a place where some other desirable plants are grown or where no plantation is needed at all. The plants growing in agricultural fields, having more negative values and competing with the main crops for soil, water, nutrients etc are known as weeds (Ali *et al.*, 2003). However, weed is a relative term loaded with value endowed by human beings in relation to their own activities and it is in anthropocentric concept rather than an absolute quality. Wild plants grow in all type weather condition but winter and rainy season is most conducive for the growth of plants. These weeds would be great source of herbal medicines.

Allopathic drugs have brought a revolution throughout the world, but the plant based medicines have its own status (Ahmad 2003). The local uses of plants as a cure are common particularly in those areas, which have little or no access to modern health services. Hence

due to less communication means, poverty, ignorance and unavailability of medicinal facilities, most people of especially rural people still forced to practice traditional medicines for their treatment, and also forgetting about indigenous knowledge of plants. But most of the people especially old people still possess the knowledge about wild resources (Zhang 1996). Nath *et al.* (2007) described ethnomedicinal aspects of 38 species of weeds of Darrang district of Assam. According to Saika and Hassain (2005) weeds are highly efficacious as medicine against common diseases and other health problems of man. Hence an attempt has been made to survey the ethnomedicinal weeds present in the sugarcane fields of Villupuram district, Tamil Nadu.

2. MATERIALS AND METHODS

2. 1. Study area

The Villupuram district extends over an area of 8204.63 sq. Km, is situated in the south eastern portion of Tamil Nadu. It is bounded on the north by Thiruvannamalai and Kanchipuram districts on the east by the Bay of Bengal, on the south by the district of Cuddalore and on the west by Salem and a part of Dharmapuri districts. The average maximum and minimum temperature ranges from 32.78° C to 24.08° C respectively. The district lies between 11° 57' N latitude and 79° 32' E longitude.

2. 2. Methodology

Present study was conducted in ten selected sites of Villupuram district in the sugarcane crop fields. Random quadrat method was adopted for studying phytosociological attributes of weeds. Quadrat of 1' × 1' m were laid down and hence a sum of 60 quadrats was laid. All the weeds from each quadrat were collected separately in polythene bags. The information regarding the local name, plant parts used, name of the diseases cured and the process of administration were collected with the help of rural people, village vaidyas and aged elders. A questionnaire was prepared in the local language for collection of ethnic information and interviews were conducted. The collection of information was accompanied by the collection of voucher specimens. The plants were pressed, following the standard technique (Cunningham, 2001). Identification of collected specimens was done with the help of literature. Ethnomedicinal data obtained in the field were compiled and compared with the published references of Srivastava *et al.* (2000), Prajapathi and Khana (2004) and Jadeja *et al.* (2004). Frequency, Relative frequency, Density and Relative density of the species were calculated by using formulae.

$$\text{Frequency (\%)} = \frac{\text{Total number of quadrats in which the species occur}}{\text{Total number of quadrats studied}} \times 100$$

$$\text{Relative Frequency (\%)} = \frac{\text{Frequency of individuals of a species}}{\text{Total frequency of all species}} \times 100$$

$$\text{Density} = \frac{\text{Total number of individuals of a species in all quadrats}}{\text{Total number of quadrats studied}}$$

$$\text{Relative Density (\%)} = \frac{\text{Density of individuals of a species}}{\text{Total density of all species}} \times 100$$

3. RESULTS AND DISCUSSION

Present study is undertaken with a view to explore the source, purpose and method of use of different plant resources of Villupuram district. The present survey was done to record the overall relationship of the local people with plant resources. The information obtained from the various sources of the area of study has been given in the Table 1.

Table 1. Survey of ethnomedicinal plants in the sugarcane field.

S. No.	Botanical Name	Family	Vernacular Name	Parts used	Uses
1.	<i>Abutilon indicum</i> L.	Malvaceae	Thutthi	Leaves, flowers	Urinary infection, Piles
2.	<i>Acalypha indica</i> L.	Euphorbiaceae	Kuppaimaeni	Whole plant	Anthelmintic, Ulcers
3.	<i>Achyranthes aspera</i> L.	Amaranthaceae	Naayuruvi	Leaves, seeds	Urinary and skin diseases
4.	<i>Adhatoda zeylanica</i> Nees.	Acanthaceae	Adhatoda	Leaves, roots	Tuberculosis, Ulcer, Piles

5.	<i>Alternanthera sessilis</i> R.br ex DC	Amaranthaceae	Ponnaankanni	Whole plant	Eye diseases, body cool, Ulcer
6.	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Mullukeerai	Whole plant	Mouthwash, Toothache
7.	<i>Amaranthus tricolor</i> L.	Amaranthaceae	Thandukeerai	Leaves, roots	Blood pressure
8.	<i>Amaranthus viridis</i> L.	Amaranthaceae	Kuppaikerai	Leaves, roots	Skin diseases, Blood pressure
9.	<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Moorkaratai	Whole plant	Eye infection, Anaemia
10.	<i>Cardiospermum helicacabum</i> L.	Sapindaceae	Modakkanthaan	Whole plant	Fever, Eye complaints
11.	<i>Centella asiatica</i> Urb.	Apiaceae	Vallaarai	Whole plant	Cooling, carminative, Asthma

12.	<i>Chloris barbata</i> Sw.	Poaceae	Coraipillu	Roots	Cold, Rheumatism
13.	<i>Cleome viscosa</i> L.	Cleomaceae	Vaelaikeerai	Whole plant	Wounds, Ulcer, Earache
14.	<i>Clitoria ternatea</i> L.	Fabaceae	Sangupoo	Roots, Leaves	Skin diseases, Asthma
15.	<i>Coccinia indica</i> Voigt.	Cucurbitaceae	Kovaikaai	Roots, Fruits	Asthma, Diabetis
16.	<i>Croton sparciflorus</i> Mor.	Euphorbiaceae	Railpoondu	Roots	Cough, Fever, Vomiting
17.	<i>Cynodon dactylon</i> Pers.	Poaceae	Arugampul	Tubers	Skin diseases
18.	<i>Commelina benghalensis</i> Schult. F.	Commelinaceae	Kaanaakuzhai	Whole plant	Cancer, Ulcer, Skin diseases
19.	<i>Cyperus rotundus</i> L.	Cyperaceae	Koraipil	Whole plant	Vomiting , Wounds

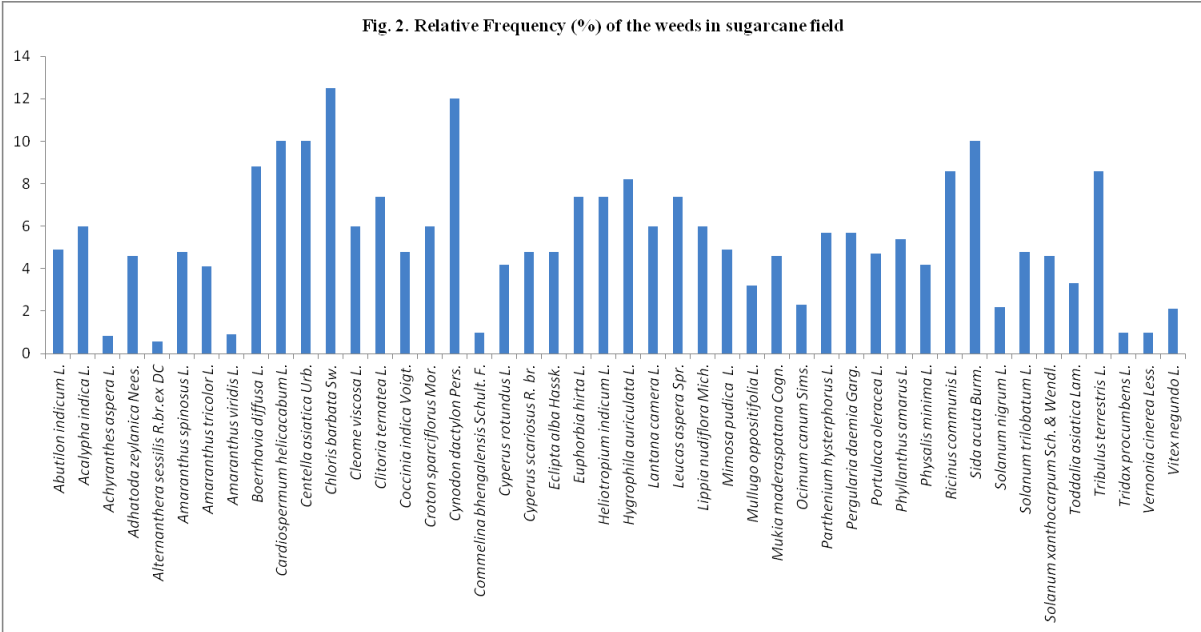
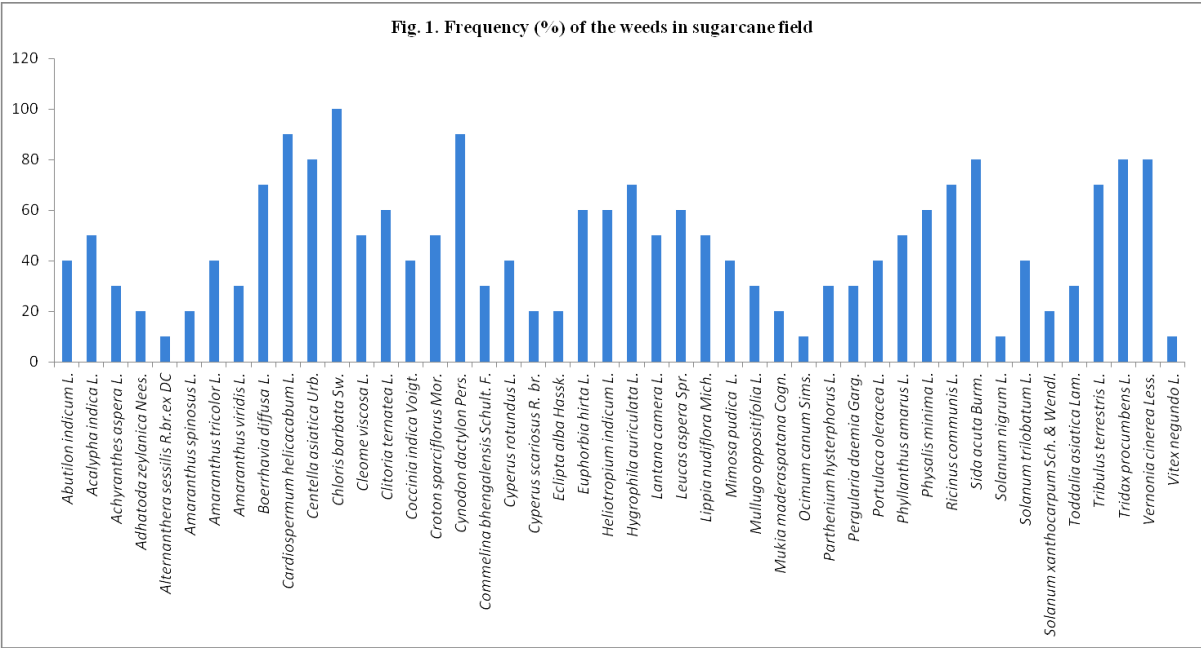
20.	<i>Cyperus scariosus</i> R. br.	Cyperaceae	Poonkorai	Tubers	Stomach pain, Washing hair
21.	<i>Eclipta alba</i> Hassk.	Asteraceae	Karisalaankanni	Whole plant	Chronic diseases, Cough
22.	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Ammanpacharisi	Whole plant	Cough, Brest pain, asthma
23.	<i>Heliotropium indicum</i> L.	Boraginaceae	Siruthaelkoduksu	Whole plant	Cough, Fever, Wounds
24.	<i>Hygrophila auriculata</i> L.	Acanthaceae	Neermuli	Roots, Seeds	Rheumatism, eye diseases
25.	<i>Lantana camara</i> L.	Verbinaceae	Kuruvipoo	Whole plant	Ulcers, Wounds, asthma
26.	<i>Leucas aspera</i> Spr.	Lamiaceae	Thumbai	Leaves, flowers	Dyspepsia, Vermiosis

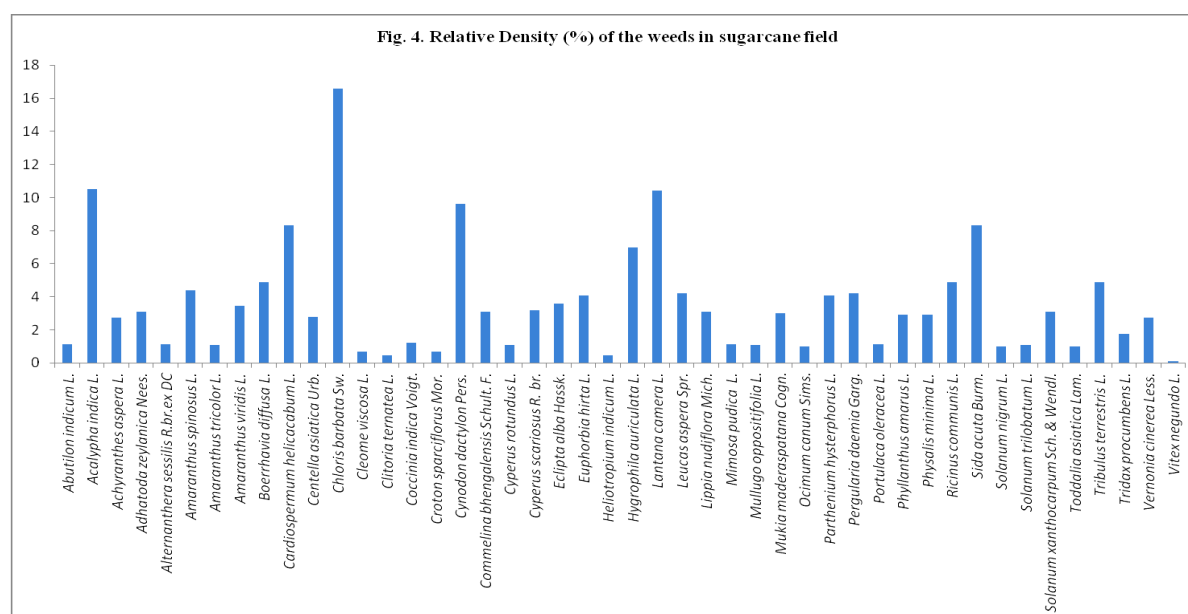
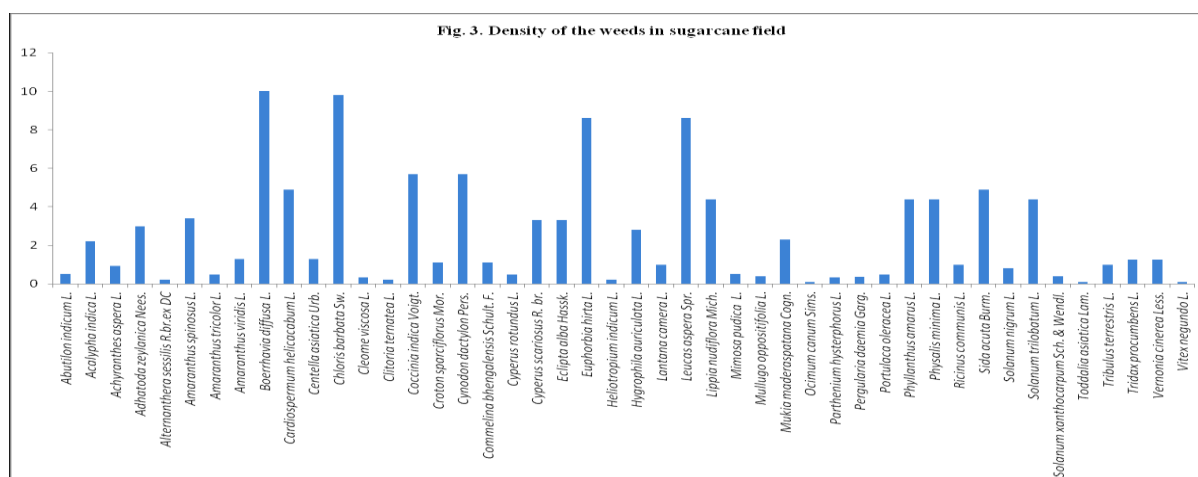
27.	<i>Lippia nudiflora</i> Mich.	Verbinaceae	Poduthalai	Whole plant	Ulcers, Wounds, Asthma
28.	<i>Mimosa pudica</i> L.	Mimosaceae	Thottaa sinungi	Whole plant	Dysentry, asthma
29.	<i>Mullugo oppositifolia</i> L.	Aizoaceae	Paarpadagam	Whole plant	Dysentry
30.	<i>Mukia maderaspatana</i> Cogn.	Cucurbitaceae	Musumusukkai	Leaves, Seeds	Chronic diseases, cough
31.	<i>Ocimum canum</i> Sims.	Lamiaceae	Naaithulasi	Whole plant	Cough, Dysentry
32.	<i>Parthenium hysterphorus</i> L.	Asteraceae	Parthenium	Whole plant	Dysentry
33.	<i>Pergularia daemia</i> Garg.	Asclepiadaceae	Veeliparuthi	Leaves, fruit	Child birth

34.	<i>Portulaca oleracea</i> L.	Portulacaceae	Pasalai	Leaves	Dysentery, Haemorrhoids
35.	<i>Phyllanthus amarus</i> L.	Euphorbiaceae	Keelanelli	Whole plant	Stomach pain, Ulcer, fever
36.	<i>Physalis minima</i> L.	Solanaceae	Tholthakkaali	Whole plant	Urinary purgative
37.	<i>Ricinus communis</i> L.	Euphorbiaceae	Aamanakku	Leaves, roots	Pilles, cough, headache
38.	<i>Sida acuta</i> Burm.	Malvaceae	Arivaalmunai poondu	Leaves, flowers	Swelling, Blood clot
39.	<i>Solanum nigrum</i> L.	Solanaceae	Manatthakkaali	Leaves, roots	Ulcers, burning sensation
40.	<i>Solanum trilobatum</i> L.	Solanaceae	Thoodhuvalai	Leaves	Cold, Pain, Cough
41.	<i>Solanum xanthocarpum</i> Sch. & Wendl.	Solanaceae	Kandankathiri	Whole plant	Cough, Stomach pain, Asthma

42.	<i>Toddalia asiatica</i> Lam.	Rutaceae	Milaharani	Roots, leaves	Skin diseases, Piles, Cough
43.	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Nerinji	Fruits	Crystalluria, Urolithiasis
44.	<i>Tridax procumbens</i> L.	Asteraceae	Vettukaya poondu	Whole plant	Ulcer, Antiseptic
45.	<i>Vernonia cinerea</i> Less.	Asteraceae	Neisurutti	Roots, leaves	Wounds, Rheumatism
46.	<i>Vitex negundo</i> L.	Verbinaceae	Nochi	Whole plant	Skin diseases, Piles

Observation indicated that weed species collected from crop fields are being used to cure different human diseases. Out of 153 weeds studied, 46 weeds are of medicinally important and useful to cure various diseases. Amaranthaceae and Euphorbiaceae was the dominant families present with five generas, Asteraceae (4), Verbinaceae (3), Solanaceae (3), Acanthaceae (2), Cucurbitaceae (2), Cyperaceae (2), Malvaceae (2), Poaceae (2), Lamiaceae (2), followed by Asclepiadaceae, Cleomaceae, Nyctaginaceae, Sapindaceae, Apiaceae, Fabaceae, Commelinaceae, Boraginaceae, Mimosaceae, Aizoaceae, Portulaceae, Rutaceae and Zygophyllaceae. The relative frequency of *Cardiospermum*, *Centella*, *Chloris* and *Commelina* species was higher than other plants. Phytosociological attributes of sugarcane field is given in Fig. 1, 2, 3 and 4.





On the traditional uses of weeds a little work has been carried out in India. Weeds play an important role in ayurvedic medicine. Saikia and Hussain (2005) collected information on medicinal aspects of some weeds used by the Ahan and Khamti communities of Sivasagar. The present report coincides with the earlier reports of Adisesu (1997), Tomar (2009) and Prayagamurthy (2009). Workers like Dangwal *et al.* (2010) and Pereira (1998) have worked on weed flora and their management in other areas of India.

4. CONCLUSION

Awareness should be carried out to the local peoples to use these weeds as medicine and to practice them in their day today life. The various uses of these weeds may aid dealers in crude drugs manufactures of plant products or persons interested in the beneficial aspects

of plants. Hence it is concluded that weeds present in the sugarcane fields can be used as medicines directly or in ayurvedic medicine in large scale.

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