



E-ISSN: 2321-2187
P-ISSN: 2394-0514
IJHM 2017; 5(6): 108-113
Received: 19-09-2017
Accepted: 20-10-2017

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A checklist of medicinally important weeds grows in the horticulture fields of Palayamkottai, Tirunelveli district, and Tamil Nadu

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Abstract

In the present report, a check list of 41 medicinally important weed plants belongs to 23 families grow in the Horticulture fields nearby Palayamkottai, Tamil Nadu are documented. Frequently visited the field to collect and document the plants in reproductive stages. Collected plants were identified and their medicinal and therapeutic abilities with reference to Siddha formulations are enumerated.

Keywords: Weeds, siddha, traditional medicine, medicinal uses

Introduction

In the present scenario, herbal medicines are highly considered owing to their inherent therapeutic potentials such as easy access, less possibilities of adverse side effects and cost effective [1]. Most of the formulation of the traditional medicine system like Ayurveda and Siddha are composed of about 90% herbal products of whole plants or part of the plants such as stem, bark, root, root bark, rhizome, leaf, flower, fruits and seeds. In some extent secondary metabolites like resin, gum and latex have also been utilized as a drug [2].

Some plants which are recorded as weeds [3], are frequently been used as a medicine by the local inhabitants. Weeds may be defined as undesirable plants grow on soil along with the crop plants, which deplete the nutrients, water and space required for the crop plants resulted in the low yield of crops [4]. Generally, weeds are often used as fodder and leafy vegetables (e.g. *Amaranthus viridis* L. *Alternanthera sessilis* (L.) R. Br. ex Sweet, *Portulaca oleracea* L.). Crop weeds were extensively explored for their various medicinal properties Patel *et al.* [5] reported various uses of weeds in the major cereal crops and their ethno botanical uses. Dhanam and Elayarai [6] enumerated the ethnomedicinal properties of some weeds from paddy fields. In the present study, the weeds grow in the horticultural fields are observed frequently and documented along with their medicinal uses.

Materials and methods

Frequent visits were undertaken from the month of January to August, 2017 to the horticultural fields nearby Palayamkottaitaluk (8.71°N, 77.73°E), Tirunelveli District, Tamil Nadu before and after harvesting of the vegetables. The collected plants were identified using herbarium specimens housed in SCRUI, Palayamkottai. Information were collected and compared with the literatures and documented. The medicinal weeds enumerated alphabetically by botanical name along with their respective family, vernacular names. Siddha formulations in which, some of the listed plants are used as a component also given in table (Table. 1).

Results

In the present paper, 41 selected weeds, their botanical descriptions and folk/ therapeutic uses are briefly described below (Fig.1, 2 and 3).

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Table 1: List of weeds observed in the field with family and therapeutic uses.

S. No.	Botanical Name (Family)	Tamil/Sanskrit Name	Medicinal properties
1.	<i>Abutilon indicum</i> (L.) Sweet (Malvaceae)	Thuthi/ Atibala	Stomach disorders, Piles, Ulcers, Cough, Jaundice and Aphrodisiac [7, 8].
2.	<i>Aerva lanata</i> (L.) Juss. (Amaranthaceae)	Sirupeelai/ Pashanabheda	Anaemia, Urinary calculi, Menorrhagia, Dysuria, Anthelmintic, Diuretic [9, 10].
3.	<i>Alternanthera sessilis</i> (L.) R. Br. ex DC. (Amaranthaceae)	Ponnanganni/ Matsyakshi	Leprosy, Fever, Night blindness [6, 11].
4.	<i>Amaranthus viridis</i> Hook. K: (Amaranthaceae)	Kuppaikerai/ Tanduliya	Indigestion, Ear diseases, Skin eruption, Fever, Worm infestation, Abdominal disorder [8, 12].
5.	<i>Ammania baccifera</i> (L.) (Lythraceae)	Neerumelneruppu/ Pashanbheda	Polyuria, Snake-bite, Ulcers, Leucorrhoea [8, 13].
6.	<i>Anisomeles malabarica</i> (L.) R. Br. (Lamiaceae)	Peimiratti/ Mahadronah	Gastric dysfunction, Hypertension, Snakebites, Rheumatism, Mosquito repellent, Dyspepsia, Analgesic [9, 14].
7.	<i>Boerhavia diffusa</i> L. (Nyctaginaceae)	Mukurattai/ Punarnava	Mukurattai/ Punarnava
8.	<i>Chloris barbata</i> SW. (Poaceae)	Mayirkondaipul/ Jarji	Diabetes, Fever, Skin diseases, Diarrhea [16, 17].
9.	<i>Cleome viscosa</i> L. (Capparidaceae)	Naikadugu, Naivelai/ Tilaparni	Ear diseases, Ulcer, Inflammations, Fever [18, 19].
10.	<i>Coldenia procumbens</i> L. (Boraginaceae)	Seruppada/ Tripakshie	Boils, Rheumatic swellings, Tumors [20, 21].
11.	<i>Commelinabenghalensis</i> L. (Commelinaceae)	Aaduthinnathalai, Kanavaazhai/ Kacchata	Hemorrhage, Fever, Rabies, Emollient, Leprosy, Epilepsy, Diuretic, febrifuge, Snakebites, Skin diseases [22, 23].
12.	<i>Corchorus capsularis</i> L. (Malvaceae)	Sanal/ Chanchu	Fever, Dysentery, Swellings, Skin diseases [24, 25].
13.	<i>Corchorus olitorius</i> L. (Malvaceae)	Peratti/ Mahachanchu	Fever, Liver disorders, Tumors, Skin diseases, Digestive complaints [25, 26].
14.	<i>Croton bonplandianus</i> Baill. (Euphorbiaceae)	Rail poondu / Kala Bhangra	Jaundice, Abscesses, Headache, Veneral sores [27, 28].
15.	<i>Cynodon dactylon</i> (L.) Pers. (Poaceae)	Arugampullu/ Durva	Haemorrhage, Fainting, Thirst, Skin disease, Menorrhagia [29, 30].
16.	<i>Cyperus kyllingia</i> Endl. (Cyperaceae)	Veluttanirbasi/ Svetanirvisa	Diuretic, Diabetic, Fever, Fistula, Diarrhea, Bronchitis [31, 32].
17.	<i>Eclipta alba</i> (L.) Hassk. (Asteraceae)	Karisaalai/ Bhrngaraaja	Eye diseases, Hair problems, Dental diseases, Leprosy, Worm infestation, Anaemia [9, 33].
18.	<i>Euphorbia hirta</i> L. (Euphorbiaceae)	Amman patcharisi, Chitrapaalada/ Dugdihika	Cough, Asthma, Dysentery, Urinary tract infection [6, 18].
19.	<i>Glinus lotoides</i> L. (Molluginaceae)	Sirucherrupada/ Kapitthapatra	Abdominal disorders, Veneral diseases, Leucorrhoea, Leprosy, Gastric indigestion [34].
20.	<i>Hygrophila auriculata</i> (Schum.) Heine (Acanthaceae)	Nirmulli/ Kokilaksha	Anaemia, Dropsy, Piles, Oedema, Dysuria, Gout, Thirst, Aphrodisiac [6].
21.	<i>Hyptis suaveolens</i> (L.) Poit. (Lamiaceae)	Ganga tulasi / Bhustrena	Stomachache, Tumour, Cutaneous diseases [35, 36].
22.	<i>Leucas aspera</i> (Willd.) Link (Lamiaceae)	Thumbai/ Dronapushpee	Jaundice, Fever, Skin diseases, Cough, Cold [8].
23.	<i>Lindernia procumbens</i> (Krock.) Philcos (Scrophulariaceae)	Not available/ Prostrate false pimpernel (English)	Gonorrhea [24].
24.	<i>Ludwigia adscendens</i> (L.) H.Hara (Onagraceae)	Katukirambu/ Bhulavangah	Ulcers, Skin diseases, Inflammations [37, 38].
25.	<i>Mimosa pudica</i> L. (Mimosaceae)	Thotavadi, Thottarchinungi/ Lajjalu	Diarrhoea, Diabetes, Urinary calculi, Dysentery, Epilepsy, Sexual diseases [18].
26.	<i>Mollugo pentaphylla</i> Linn. (Molluginaceae)	Thurapoond/Parpadagam	Stomachic, Antiseptic, Skin diseases, Diuretic, Anti-pyretic [39, 40].
27.	<i>Nothosaerva brachiata</i> (L.) Wt. (Family: Amaranthaceae)	Sirupeelaichakkalathi/ Pasanabheda	Urinary infections, Menorrhagia, Anaemia, Anthelmintic, Diuretic [24].
28.	<i>Oldenlandia umbellata</i> L. (Rubiaceae)	Chaayaver/ Rajana	Asthma, Poisonous bites, Tuberculosis, Cancer [41, 42].
29.	<i>Oxalis corniculata</i> L. (Oxalidaceae)	Puliyaarai / Asmanthaka, Kushali	Dysentery, Cough, Leucorrhoea, Dandruff [18].
30.	<i>Paspalidium flavidum</i> (Retz.) A.Camus. (Poaceae)	Varagapullu/Not available	Skin diseases, Liver complaints, Headache, Tooth problems [60, 61].
31.	<i>Phyla nodiflora</i> (L.) Greene. (Verbenaceae)	Poduthalai/ VasirVasuka	Dysentery, Cough, Leucorrhoea, Dandruff [43, 44].
32.	<i>Phyllanthus amarus</i> Schum. & Thonn. (Euphorbiaceae)	Keelanelli / Bhumyaamalaki	Jaundice, Fevers, Diarrhoea, Urinary infections, Skin diseases, Cold and Wounds [8, 45].
33.	<i>Physalis minima</i> L. (Solanaceae)	Sodakkuthakkali/ Chirapotikaa	Ear problems, Inflammations, Cancer, Skin diseases [46, 47].
34.	<i>Portulaca oleracea</i> L. (Portulacaceae)	Pasalaikeerai / Ghol	Jaundice, Diabetes, Urinary disorder, Menorrhagia, Vomiting [48, 49].
35.	<i>Scoparia dulcis</i> L. (Scrophulariaceae)	Sarkaraivembu, Kalluruvi / Pashanabheda, Asmaghni	Antidiabetic, Fever, Cough, Kidney stone [50].
36.	<i>Sida cordifolia</i> (Burm.f) Borss. (Malvaceae)	Palampasi, Nilathuthi/ Bala, Batyalaka	Diarrhoea, Micturition, Leucorrhoea, Gonorrhoea, Wounds [18].
37.	<i>Sphaeranthus indicus</i> L. (Asteraceae)	Kottaikaranthai / Mahamundi	Eczema, Skin diseases, Piles, Oedema, Filariasis [29, 51].
38.	<i>Tephrosia purpurea</i> (L.) Pers. (Papilionaceae)	Kolingi / Pleehashatru	Diarrhoea, Impotency, Bronchitis, Gonorrhoea, Arthritis, Urinary disorders, Piles [52, 53].
39.	<i>Tribulus terrestris</i> L. (Zygophyllaceae)	Nerunji/ Goksura	Aphrodisiac, Urinary tract infections, Nervous disorders, Inflammations [54, 55].
40.	<i>Tridax procumbens</i> L. (Asteraceae)	Vettukkaaya-thalai/ Jayantiveda	Liver disorder, Diarrhea, Dysentery, Blood pressure [56, 57].
41.	<i>Vernonia cinerea</i> (L.) Less. (Asteraceae)	Naichitte / Sahadevi	Coughs, Dysuria, Leucoderma, Psoriasis, Skin diseases [58, 59].

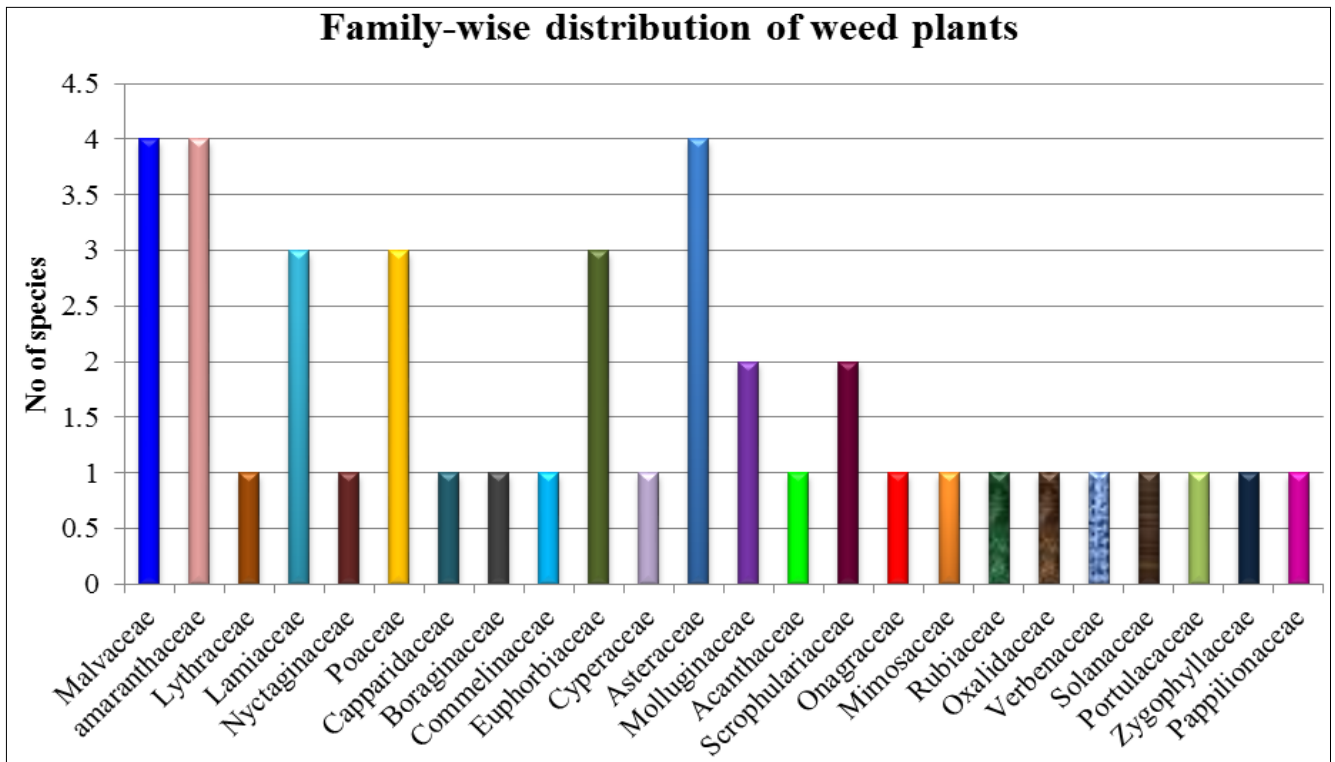


Fig 1: Family-wise distribution of weed plants in the study area.



Aerva lanata (L.) Juss.



Anisomeles malabarica (L.) R. Br.



Hygrophila auriculata (Schum.) Heine



Mimosa pudica L.



Coldenia procumbens L.



Lindernia procumbens (Kr.) Phil.



Nothosaerva brachiata (L.) Wt



Phyla nodiflora (L.) Greene



Glinus lotoides L.



Hyptis suaveolens (L.) Poit.



Sphaeranthus indicus L.



Tribulus terrestris L.

Fig 2: Some of the medicinally important weed observed in the field

Fig 3: Some of the medicinally important weed observed in the field

Table 2: Some of the above-listed plants used in Siddha formulations ^[62-64].

Sl. No.	Botanical name	Parts used	Siddha Formulations
1	<i>Abutilon indicum</i> (L.) Sweet	Rt. Bk.	1. Vadhakanthi thylam
2	<i>Aerva lanata</i> (L.) Juss ex. Schult	Rt.	1. Kalladaippu kudineer, 2. Perichangai ney
3	<i>Alternanthera sessilis</i> (L.) R.Br. ex DC.	Wh. Pl.	1. Kanathennai 2. Ponnankanni nei
4	<i>Boerhavia diffusa</i> L.	Rt.	1. Mookirattai chooranam 2. Talakac chendhooram
5	<i>Cynodon dactylon</i> (L.) Pers.	Rt.	1. Chendhoorangalin veeruthaniyakudineer 2. Aruhantailam
6	<i>Glinus lotoides</i> L.	Wh. Pl.	1. Soubagyasundi Ilakam 2. Peichorichooranum
7	<i>Hygrophila auriculata</i> (Schum.) Heine	Sd.	1. Kaatuvai mathirai 2. Kapada Ilakam 3. Kumari illagam 4. Chandhana illagam 5. Neermulikudineer
8	<i>Leucas aspera</i> (Willd.) Link	Rt.	1. Sundaiver Aakiranam
9	<i>Oxalis corniculata</i> L.	Lf.	1. Kadukkai illagam 2. Kanathennai 3. Puliyarainei
10	<i>Phyla nodiflora</i> (L.) Greene.	Wh. Pl.	1. Athimadhura mathirai 2. Naaksoolai kuthailam 3. Poduthalai thylam 4. Vipruthiyennai
11	<i>Phyllanthus amarus</i> Schum. & Thonn.	Wh. pl.	1. Milagu thailam 2. Kandankathiri nei 3. Sinthathi illagam 4. Thippili nei 6. ManjalNoiku Kudineer(Jaundice)
13	<i>Tribulus terrestris</i> L.	Rt.	1. Aathondai nei 2. Chandragandhi choornam 3. Inji illagam 4. Kandankathiri nei 5. Kalladaippu Kudineer 6. Sindhathi illagam

(Rt. Bk.-Root Bark; Rt.-Root; Wh. Pl.-Whole plant; Lf.-Leaf; Sd. - Seed)

Discussion and conclusion

The present investigation briefed the medicinal properties of some weeds recorded in folk and traditional system of medicine such as Siddha (Table 1, 2). Almost all plants listed above are herbaceous and the whole plants were used in various ailments. Though weeds are continuously discussed from the onset of Horticulture; various efforts have been taken to control them, recently many researchers reported on the beneficial approach towards weeds ^[65]. However, the farmers are not aware of the value of these plants which are considered as weed that led to eradication of medicinally important plants such as *Tribulus terrestris*, an important plant to cure urinary tract infections and *Boerhavia diffusa*, a drug used in all traditional medical systems (Table 1, 2).

Amongst the above listed plants, it has been observed that *Abutilon indicum*, *Aerva lanata*, *Alternanthera sessilis*, *Amaranthus viridis*, *Ammania baccifera*, *Cleome viscosa*, *Commelina benghalensis*, *Cynodon dactylon*, *Cyperus* spp., *Eclipta alba*, *Euphorbia hirta*, *Portulaca oleracea* and *Sida cordifolia* were commonly found in rice fields ^[66]. Tribal people, village dwellers and folklore utilizes the whole plants or their parts from agricultural lands. In this connection, Satapathy *et al.* ^[67] reported some of the listed crop weeds and their ethnic uses in Jajpur district of Odisha. Recently Aher ^[68] documented the various ethnomedicinal properties of 61 weeds belongs to 33 families in drought prone area (Tehsil) of Maharashtra. Various parts of crop weeds used by tribals of Koraput was discussed by Panda *et al.* ^[4]. Medicinal properties of the plants which claimed as ethnomedicines is

questionable, since weeds lower the yields of crops by absorbing the mineral nutrients and water ^[69] along with the pesticides and fertilizers applied to the crops which contaminate the surface of the vegetation, soil and the therapeutical activity of the plants. Thus, it is recommended to be standardised the quality of the plants from their fields which have been used in the preparations/formulations without losing its medicinal properties. The awareness programme on the utilization of weed as a medicine will be highly useful to the farmers to acquire an additional income. This pilot study included the weed plant rose in short duration at the horticulture fields, the number of plants may increase with the rainy and winter seasons. The present study concluded that crop weeds used in our traditional medicines, could serve mankind efficiently as collected from the contaminant free substrate and hygienic environment. However, further exploration of these weedy medicinal plants at the next level could help us to conserve the threatened medicinal plants in the treatment of various diseases.

Acknowledgment

Authors thank Dr. V. Chelladurai, Honorary Expert, SCRUC for identification of the medicinal plants. Dr. P. Elankani, Research Officer, i/c, and Dr. K. Sivaranjani, Research Officer, SCRUC are acknowledged for their constant supports.

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