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SURVEY OF SOME MEDICINAL WEEDS FROM AGRO-ENVIRONS FOR SUSTAINABLE HEALTH CARE AND HYGIENE FROM SATARA DISTRICT OF MAHARASHTRA STATE

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ABSTRACT

Uses of medicinal plant studies have gained a considerable attention in the recent past throughout the globe including India. Satara district is endowed with diverse flora with many medicinal plants used by local people to cure many diseases. This district largely depends on agriculture. Jowar, wheat, sugarcane, beans, potato, onion, chilies, tomato and many fruit crops are cultivated by farmers; the weeds are major problem for the farmers. The present paper deals with medicinal potential of weeds found in various agricultural crop fields. The information about the medicinal uses was collected from the interviews with local people and also from literature of different medicinal systems. During the survey 44 species of medicinal weeds in crop fields were recorded. The identified plant species belonged to 27 families; of which 25 were dicot and 2 were monocot families. The list of medicinal weeds with their botanical name, family, plant parts used and medicinal uses is presented in this paper.

INTRODUCTION

Weed is a plant that interferes with human intentions and with man's utilization of land for a specific purpose. A weed in general is 'a plant out of place' which is not wanted where it is growing. Weeds growing with crops absorb nutrients from the soil more efficiently than main crops that reduce their yield, thus they are harmful to the crops. However, some weeds having medicinal values are used by the local people for curing various ailments, diseases and disorders.

Pharmaceutical companies require many such medicinal weeds as a raw material for Ayurvedic medicine preparations (Suryavanshi et al. 2011). So it is important to identify such medicinal weeds form the region and made to known to the farmers. By such ethno-botanical knowledge, farmers may collect the medicinal weeds from crop fields and able to get additional income. Thus identification and documentation is essential.

Many weeds are useful as they may be having medicinal properties, some may be edible, some attract wild life, they increase biodiversity, some weeds are used as fodder, some as manures and some weeds are potential source of medicine (Kumar et al. 1997). Many weeds have secondary metabolites which may be used to cure human ailments. The significance of plants in the maintenance of earth's ecological balance is only now being fully appreciated and understood. The plant products are used from ancient days as the food and therapeutic products used as the source for treatment of various ailments or disorders (Kulkarni and Khilare 2008). There are large number of publications on medicinal plants published by Botanists, Pharmacologists and Ayurvedic practicenors, but there is no record of medicinal weeds and their medicinal uses. Therefore, a survey was conducted to enumerate the medicinal weeds from Satara District and findings are presented in this paper.

Study area: Satara district (M.S.) is situated at the Western limit of the Deccan tableland between the Latitudes $17^{0}50'$ to $18^{0}11'$ N and $73^{0}33'$ to $74^{0}54'$ E Longitudes and covers an area of 10492 sq. kms. It stretches 145kms from East to West and 120kms. from North to South. It is bordered by the Pune District in North, Solapur District in East, Sangli District in South and the Ratnagiri District in the West. These boundaries coincide with some physical features like Nira river on the North, Sahyadri range on the West and Mahadev hills on the East. The Forest area cover is 1697.6sq.kms.of which 152.8sq.kms. is reserve forest, 58.6 sq.kms. is protected forest, 63.2 sq.kms. is unclassified forest and 53.9 sq.kms. is leased forest. Soil of the area falls under 3 categories viz. Medium black to deep black, lighter soil and Red Laterite soil. District includes 1573 villages, 11 cities

and 11 tehsils. Mahabaleshwar is the highest point 1436m above Mean Sea Level (Deshpande et al. 1993).

MATERIALS AND METHODS

During present investigation, both intensive and extensive field explorations were carried out to various places in the study area to identify the medicinal weeds growing in various crop fields i.e. during Kharif and Rabi seasons from June, 2011 to June, 2013 at regular intervals to find out the medicinal weeds. The plants were collected and identified with the help of available literature and classical floras viz. Hooker (1872-1897), Cooke (1901-1908), Deshpande et al. (1993, 1995), Singh and Karthikeyan (2000), Yadav and Sardesai (2002).

The identified weeds were studied for their medicinal values. Ayurvedacharyas, vaidyas, herb doctors and local people were interviewed to know their medicinal importance which is documented in the present paper. However, there is a need for detailed study for wider application of the medicinal weed plants.

RESULTS AND DISCUSSION

During field surveys, 44 medicinal weed plants belonging to 27 families were identified which were used by local people to cure different diseases and other health related problems (Table 1). The herbal preparations are used in the treatment of bronchitis, asthma, cough, fever, headache, gastro-intestinal problems, muscular pain, arthritis, rheumatism, swelling, skin diseases etc. It also includes medicines for jaundice, ulcers, urinary disorders, kidney stones, dysentery, diarrhea and piles. The preparation methods included are juice, decoction, paste, powder, extracts and infusion. Some plants are also used as tonic, astringents, memory enhancers etc. Medicinal plants represent a major national resource as the herbal medicines occupy a vital sector of human health care system in India. The medicinal plants though used extensively by the people, yet the methods are crude and need proper standardization for effective and scientific treatment. The active principles of these plants have yet not been worked out and there is great need for further research in this area so that these cures can be exploited at national and international level on sound scientific principles (Sukh Dev 1983, Karne 2011).

Modern facilities are now making rapid penetration into the remote villages which may result in the disappearance of the herbal wealth. It is important that valuable knowledge from local people of the medicinal uses of weed plants to treat different diseases be recorded (Bhatt et al. 2001, Auti et al. 2004). It is apparent from this survey that due to lack of awareness about medicinal importance of these weeds, farmers discard them. Important weed plants can become an additional source of income for farmers, hence awareness of these medicinal plants among farmers is essential (Khilare and Saindanshiv 2004). It is hoped that this study will draw the attention of phytochemists and pharmacologists for further critical investigation of this region.

Table 1. Medicinal Weeds, Family, Parts used and Medicinal uses.

Sr. No	Botanical Name	Family	Parts Used	Medicinal Uses
1	*Abutilon indicum* (L.) Sweet.	Malvaceae	Entire plant	Leaf infusion in jaundice, decoction of plant on boils, as nerve tonic, leaf poultice on rheumatism, seeds as laxative in piles.
2	*Achyranthus aspera* L.	Amaranthaceae	Entire plant	Decoction in bleeding piles, roots as stomachic, digestive. Seeds as emetic, cutaneous diseases. Root powder for quick delivery of pregnant women. Leaves to dissolve kidney stones, on stomach ache, piles and skin eruption.
3	*Alternanthera sessilis* (L.) R. Br. ex. Dc.	Amaranthaceae	Entire plant	Leaf decoction in diarrhea, skin diseases, fever, leprosy, burning sensation and dyspepsia.

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4	*Amaranthus spinosus* L.	Amaranthaceae	Leaves, Roots	As laxative, diuretic, in piles, as purgative and stomach troubles.
5	*Agremone maxicana* L.	Papavaraceae	Leaves, Roots, Seeds	In psoriasis & leprosy. Leaves in wounds and ulcers. Roots used in skin diseases.
6	*Aristolochia bracteolata* Lam.	Aristolochiaceae	Entire plant	In boils and ulcers. Root decoction to expel round worms.
7	*Bacopa monnieri* (L.) Pennell.	Scrophulariaceae	Entire plant	In asthma, cough, skin diseases, bronchitis, as memory enhancer, nerve tonic, diuretic, nervous disorders, urinary infections, hepatitis and as anti-rheumatism.
8	*Boerhavia diffusa* L.	Nyctaginaceae	Entire plant	As diuretic, in jaundice, as laxative, leaf decoction in insect bite, wounds and cuts.
9	*Calotropis gigantea* R.Br.	Asclepiadaceae	Roots	Anti-dysenteric, leaf powder in healing of wounds, boils. With castor or sesame oil warmed and used in piles. Root bark useful in bleeding teeth, scorpion sting and rheumatism.
10	*Calotropis procera* (Ait.) R.Br.	Asclepiadaceae	Leaves, Roots, Flowers,	Root bark on ulcers, leaves on gastric troubles in children. Flowers used to expel intestine worms.
11	*Cardiospermum halicacabum* L.	Sapindaceae	Entire plant	Crushed leaves in scorpion sting, rheumatism, in fever and arthritis.
12	*Catharanthus pusillus* (Murr.) G. Don	Apocynaceae	Entire Plant	Plant has tumor dissolving properties. Used in paralysis, epilepsy and ulcers.
13	*Centella asiatica* (L.) Urb.	Apiaceae	Entire plant	Anti-dysenteric, diuretic, skin diseases, anemia, stomach disorders, enhance memory, in TB, nervous disorders, rheumatism and in mental weakness to improve memory.
14	*Celosia argentea* L.	Amaranthaceae	Seeds	Anti-dysenteric and anti-diarrheal.
15	*Citrullus colocynthis* (L.) Schrad.	Cucurbiataceae	Fruit	In fever, piles, as gargle and mouthwash, in dropsy, jaundice,skin diseases and as purgative.
16	*Cleome gynandra* L.	Capparidaceae	Leaves	In boils and as anti-worms.
17	*Commelina benghalensis* L.	Commelinaceae	Leaves	Leaf juice in dysentery, leaf paste for body pain, swellings, in leprosy, boils, and nervous disorders.
18	*Croton tiglium* Dalz.	Euphorbiaceae	Leaves, Seeds	As purgative, leaves in skin diseases, cuts and wounds.

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19	*Cynodon dactylon* (L.) Pers.	Poaceae	Entire plant	Juice for acidity, body heat, amoebiosis, diarrhea, prevents bleeding. Root decoction is diuretic, given in hysteria, epilepsy and syphilis.
20	*Datura metal* L.	Solanaceae	Leaves, Seeds, Flowers	In asthma, anti-spasmodic, as narcotic, flower poultice in wound pains, in fever, skin diseases, insomnia, and bronchitis.
21	*Datura stramonium* L.	Solanaceae	Leaves, Seeds	In bronchitis, asthma, anti-spasmodic, as narcotic, seeds in prevention of motion sickness.
22	*Echinops echinatus* Roxb.	Asteraceae	Roots, Seeds	Seed powder as tonic, roots used in urinary disorders, bronchitis and eye diseases.
23	*Eclipta prostrate* (L.) L.	Asteraceae	Entire plant	Plant is emetic, rejuvenator, used in hepatotoxicity, skin diseases, leaves as anti-inflammatory, with oil as hair tonic and in jaundice.
24	*Euphorbia hirta* L.	Euphorbiaceae	Entire plant	Used in bowel complaints, asthma, cough, expels worms in children, roots prevent vomiting; plant has depressant action on respiration and heart.
25	*Euphorbia microphylla* Heyne.	Euphorbiaceae	Entire plant	Paste taken once a day for seven days for dysentery.
26	*Evolvulus alsinoides* (L.)	Convolvulaceae	Entire plant	Decoction used as general tonic.
27	*Hemidesmus indicus* (L.) Schultes.	Periplocaceae	Roots, Seeds	Root as anti-rheumatic, root with garlic paste on snake bite, used in liver, skin diseases, loss of appetite and in urinary complaints.
28	*Leonotis nepetaefolia* (L.) W. Ait.	Lamiaceae	Entire plant	Fruit and leaf decoction used on skin diseases and in fever.
29	*Leucas aspera* (Willd.) Link.	Lamiaceae	Leaves	Leaf is anti-rheumatic, leaf juice externally used for psoriasis, skin eruptions and swellings.
30	*Malvastrum coromandelianum* (L.) Garcke.	Malvaceae	Entire plant	Plant is anti-inflammatory, anti-dysenteric used in ulcers and jaundice. Leaves applied on wounds for healing.
31	*Oxalis corniculata* L.	Oxalidaceae	Entire plant	Used on boils, in eczema, in fevers, dysentery, scurvy, in piles, anemia, plant is astringent, vermifuge and antiseptic.
32	*Phyllanthus niruri* L.	Euphorbiaceae	Entire plant	Used in jaundice, as diuretic, cooling and in urine-genital diseases.

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33	*Portulaca oleracea* L.	Portulaceae	Entire plant	Used in dysentery, leaf decoction and fruits used in ear-ache, toothache, burns and swellings.
34	*Sida cordata* (Burm. f.) Borss.	Malvaceae	Leaves, Stem	Plant used in skin diseases, in fever, wound healing, facial paralysis and nervous disorders.
35	*Solanum indicum* L.	Solanaceae	Fruits	Fruit extract is used in cough, cold, asthma, insect bites. Fruits are laxative, digestive, anti-pyretic, anti-rheumatic and anti-inflammatory.
36	Solanum xanthocarpum Schrad & Wendl.	Solanaceae	Fruits, Roots	Used in cough, asthma, as diuretic, in fever, bronchitis, sore-throat and in muscular pain.
37	*Tephrosia purpurea* (L.) Pers.	Fabaceae	Leaves	Leaves used in jaundice, as purgative, laxative, diuretic and anti-helminthic.
38	*Tribulus terrestris* L.	Zygophyllaceae	Entire Plant	Leaves are stomachic, used in bladder stones, roots are used as tonic. Fruits used as diuretic, in sexual weakness, urinary complaints and urinary stones. Fruit decoction in diseases of respiratory system, in fever and diarrhea. Seeds used in kidney stones and impotency.
39	*Trichodesma indicum* Lehm.	Boraginaceae	Entire plant	Used in expulsion of dead fetus. In skin diseases and anti-rheumatism.
40	*Tridax procumbens* L.	Asteraceae	Leaves	Leaf juice is antiseptic, anti-fungal and insect repellent, applied on wounds.
41	*Trianthema portulacastrum* L.	Aijzoaceae	Entire plant	Plant is diuretic, arbortifucient and used in jaundice.
42	*Withania somnifera* (L.) Dunal.	Solanaceae	Entire Plant	Used as anti-rheumatism, diuretic, in leucoderma, TB, in nervous breakdown and as sex stimulant. Root powder used in ulcers, inflammation, skin diseases, bronchitis, spermatorrhoea and impotency. Leaves used in eye diseases. Plant is sedative, tranquillizer, rejuvenative, anti-tumor, nerve tonic and used as anti-stress.
43	*Xanthium indicum* Koen.	Asteraceae	Leave, Roots	Decoction is given in malaria, leucorrhoea and urinary diseases. Leaves are diuretic, astringent and anti-syphilitic.
44	*Xanthium strumarium* L.	Asteraceae	Fruits	Used in chronic fever and leucorrhoea. Decoction given in pain of half head-ache, and used in jaundice.

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