

Contribution of Herbaceous plants diversity in the Ethnomedicine of Surgana and Kalwan tehsils of Nasik district (MS) India

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ABSTRACT

The study concerns the first-hand information on 42 ethnomedicinal herbaceous plants traditionally used by aborigines and rural folks of Surgana and Kalwan tehsils of Nasik district, Maharashtra, for the treatment of various human ailments and disorders. The paper gives botanical identity, local name, family, and mode of administration of herbaceous medicinal diversity of Nasik district.

Key words : Herbaceous plants diversity, Ethnomedicine, Nasik

Introduction

Traditional medicines are widespread throughout the world has been recognized by the World Health Organisation (WHO) as an essential building block of primary health care (Bharathajothi and Jegatheesan, 2017). World Health Organization (WHO) has reported that over 80% of the world's population relies on traditional medicine (Kamble *et al.*, 2008). Globally about 85% of the ethnomedicines used for primary healthcare are derived from plants (Ignacimuthu *et al.*, 2006) Exploration of the traditional use of medicinal plants has attained significant consideration within the scientific community in recent years; about 25% of the drugs prescribed worldwide come from plants. (Upasani *et al.*, 2017)

India is one of the twelve mega-biodiversity countries of the World having rich vegetation with a wide variety of plants with medicinal value. (Ignacimuthu *et al.*, 2006) Which includes herbs,

shrubs, climbers and trees. India has a rich variety of medicinal plants growing under different geographical and ecological conditions; 1500 out of 15,000 privileged plant species have been reported to have medicinal uses (Upasani *et al.*, 2017). Indigenous knowledge is transferred orally from one generation to the next generation without any writing records, hence this knowledge is extinct gradually. (Kaido *et al.*, 1997). (Jondhale, 2018) India possesses a total of 427 tribal communities (Ignacimuthu *et al.*, 2006) through which the traditional knowledge is pecculating from generation to generation. There are 92.92% of various tribal communities mostly use traditional herbal medicines for curing various diseases.

District Nasik, Kokna, Bhil, Mahadev Koli, Warali, Thakur, and Kartkari are the main tribes of the district. They are living in different talukas areas like Srugana, Pent, Kalwan, Baglan, Igatpuri, Trambakeshwar, and Dindori, (Khairna and

Gadekar, 2019) today also most of them are depends on traditional medicines to obtain from the herbaceous plants.

Currently, biodiversity is declining due to human interference presently It is estimated that about 8% of the known plant species are on the brink of extinction which has a large part of herbaceous plants. It is reported that initially the forest fire, soil erosion, flood, Grazing, and browsing by large domestic and wild herbivores mod composition- position, structure, and diversity (Jakubka *et al.*, 2017). The present work is an attempt to conserve the indigenous medicinal knowledge of herbaceous plants of Nasik district before it lost with the old generation of tribal peoples.

Materials and Methods

Study Area

The geographical location of Nashik district lying between North latitude 19° 31' and 20° 21' and East longitude 73°30' and 74°55' with rich forest diversity of medicinal plants (Jondhale, 2018) extends over an area of 15,582 sq. km. (Khairnar, 2010). The forests in the region vary from evergreen to dry deciduous types (Khairnar and Gadekar, 2019). The temperature of the district goes up to 42 °C in summer and in winter it falls down to 4 °C (MSME, 2013). The total forest area in the district is 2.60 lakh hectares, which is 17.26% of the total geographical area. Out of the total forest area of the district, the highest forest area 16.59% is in Surgana Taluka. The average rainfall of the district is between 2600 mm to 3000 mm (MSME, 2013)

Surgana and Kalwan talukas are situated in the northwest region of the Nasik district of Maharashtra state (Jadhav, 2002). The geographical area of Surgana is 4314 sq. km and has 614 sq. km of forest area with a Rainfall average is about 1808 mm. while tehsil Kalwan has a geographical area of 1195 sq. km from which 393sq.km is covered under forest area and the average rainfall is 625 mm. Both the tehsils have diverse and mostly dry deciduous unexploited forests and huge grasslands on the top of the hills.

Methods: The ethnobotanical survey was carried out in the Surgana and Kalwan tehsils of Nasik district from June 2015 to December 2019. The data was collected from the locals who were traditional healers such as Vaidya, Bhagat, hakim, and farmers, using questionnaires in the local language and also group discussions. Voucher specimens were collected during a walk with informants. The collected plants were identified by using standard floras (Flora of Nasik District, Flora of Maharashtra, Flora of Bombay Presidency) and confirmation of some subject experts. Plants arranged alphabetically by their botanical name followed by local name, family, and uses (Khairnar and Gadekar, 2019)

Results and Discussion

After the extensive survey of ethnomedicinal plants, the present study includes 37 herbaceous plant genera and 42 species which were recorded with their 21 families. Polypodaceae is the only family belonging to Pteridophytes. Family Commelinaceae, Poaceae, and Liliaceae are the families of Monocotyledons. Family Asteraceae and Amaranthaceae are

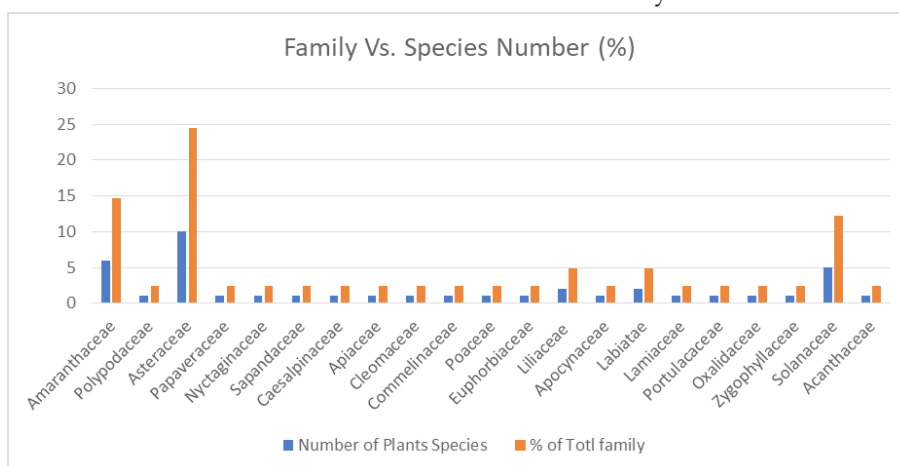


Fig. 1. Families with total number of Plants Species and their percentage

Table 1. Herbaceous Plants, their Common name and Uses.

Sr. No.	Name of the Plant	Common Name	Family	Plant Part Used	Disease/ Disorder
1	<i>Achyranthes aspera</i> L.	Aghada	Amaranthaceae	FL and R	Cure pyorrhoea, Snake Bite, Fever (Khairnar and Gadekar, 2019) (Khairnar, 2010)
2	<i>Adiantum Philippense</i> L.	Hansaraj	Polypodaceae	L	Throat infection (Jondhale 2018)
3	<i>Ageratum Conyzoides</i> L.	Burando	Asteraceae	L	On pimples and malaria (Kakulte and Gaikwad, 2014)
4	<i>Aloe vera</i> (L.) Burm.	Korpad	Liliaceae	L	Skin and hair Problem, Burn (Y.P., 2018)(Patil, 2016)
5	<i>Alternanthera sessilis</i> (L.) R. Br. Ex DC		Amaranthaceae	L	eye disease (Patil and Patil, 2007)
6	<i>Amaranthus blitum</i> L. var. <i>oleracus</i> (L.) Hook.f.	Tandulja	Amaranthaceae	L	Eye irritation (Kakulte and Gaikwad, 2014)
7	<i>Amaranthus spinosus</i> L.	Kate math	Amaranthaceae	L	Fever, (Cooling), Sex Disease- Prenachure ejaculation, Foot Craks
8	<i>Amaranthus Viridis</i> L.	Math	Amaranthaceae	L	Snake bite (Khairnar and Gadekar, 2019)
9	<i>Argemone mexicana</i> L.	Bilayat	Papaveraceae	R-Latex	Jaundice, Fever (Sonawane, 2019)
10	<i>Artemisia maderaspatana</i>	Davana	Asteraceae	L	Itching (Khairnar, 2010)
11	<i>Blumealacera</i> (Brum.F.) DC.	Buranda	Asteraceae	Wh. Pl.	Painful Fissure (Patil and Patil, 2005)
12	<i>Boerhavia diffusa</i> L.	Punarnava	Nyctaginaceae	Sd,R, L	liver complaint, Diabetes (Patil and Patil, 2007)
13	<i>Cardiospermum helicacabum</i> L.	Kapalphodi	Sapandaceae	L, R	Piles (Jondhale, 2018)
14	<i>Cassia tora</i> L.	Tarota	Caesalpinaceae	L and Sd	Skin Disorder, Seed making Coffee.
15	<i>Celosia argentea</i> L.	Kurdu	Amaranthaceae	R	Skin disease, Snake bite, dissolve urinary stones, (Sonawane, 2019)
16	<i>Centella asiatica</i> (L.) Urb.	Brahmi	Apiaceae	Wh.Pl.	Brain tonic, Anticancer (Sonawane, 2019)
17	<i>Cleome viscosa</i> L.		Cleomaceae	L	Wound application (Kuvar and Bapat, 20 (Jondhale, 2018) 10)
18	<i>Commelina benghalensis</i> L.	Kena	Commelinaceae	L (Powder)	Diarrhea
19	<i>Cynodon dactylon</i> (L.) Pers.	Haral	Poaceae	L -paste	Relieve headache, Herpes Zoster (Y.P., 2018)
20	<i>Datura innoxia</i> Mill. Gard.	Dhotra	Solanaceae	Sd and R	Dog bite
21	<i>Datura metel</i> L.	Dhotra	Solanaceae	L , F,R	Smokes for Aasthma and bronchitis, Fever (Kakulte and Gaikwad, 2014) (Khairnar and Gadekar, 2019)
22	<i>Echinops echinatus</i> Roxb.	Utkatanti	Asteraceae	Root	Scorpion sting
23	<i>Eclipta alba</i> L.	Bhingari	Asteraceae	Wh. Pl.	Hair Loss (Y.P., 2018), (Khairnar and Gadekar, 2019)
24	<i>Euphorbia hirta</i> L.	utkatanti	Euphorbiaceae	L and FL	Dysentery, Diarrhoea

Table 1. Continued ...

Sr. No.	Name of the Plant	Common Name	Family	Plant Part Used	Disease/ Disorder
25	<i>Gloriosa superba</i> L.	Kallavi	Liliaceae	T, R, L	Termination of Pregnancy, periodic fever, asthma of children. to kill rings worms in Cattle, help in release of placenta (Sonawane, 2019)(Shinde, 2017)
26	<i>Hemidesmus indicus</i> (L.) R.Br.	Anantmul	Apocynaceae	R	Roots used on skin disease, tonsillitis, stomach problem. Rs are also used in tea preparation (Khairnar and Gadekar, 2019)(Sonawane, 2019) (Shinde, 2017)
27	<i>Hygrophila auriculate</i>	Ekhara	Acanthaceae	L, Spins	Thirst, Urinary discharge, Inflammation, Diabetis (Khairnar and Gadekar, 2019) (V. B. Sonawane, 2019)
28	<i>Leonotis nepetifolia</i> (L.) R.Br.	Bond	Labiatae	Inf.	Wound application (Shinde, 2017)
29	<i>Lepidagathis cristata</i> Wild.	bhuigend	Asteraceae	L, FLs	fever, inflammation (Shinde, 2017)
30	<i>Leucas aspera</i> Willd Link.	Kumbha	Lamiaceae	L	Eaepain (Shinde, 2017)
31	<i>Lavandula bipinnata</i> (Roth) O. Kize	Gayandi	Lamiaceae	FL	Fever (Shinde, 2017)
32	<i>Ocimum sanctum</i>	Tulsi	Labiatae	Wh. Pl.	Skin Disease, Fever, Cough, (Kakulte and Gaikwad, 2014)
33	<i>Oxalis corniculata</i> L.	Ambushi	Oxalidaceae	L	Fever and biliounes (Shinde 2017)
34	<i>Portulaca pilosa</i> L. subsp. <i>grandiflora</i> (Hook.) Geesink	Gholu	Portulacaceae	Wh. Pl.	Scorpion bite FL stalk (Shinde, 2017)
35	<i>Solanum anguivi</i> Lam.	Dorali (Jaglivangi)	Solanaceae	R, FR	Tooth infection/ Pain (Sonawane, 2019) Tooth infection (Garud <i>et al.</i> , 2016)
36	<i>Solanum xanthocarpum</i> Schrad.&Wendl	Buiringani	Solanaceae	FR	Cough, Diabetis (Shinde, 2017)
37	<i>spheranthus indicus</i> L.	Gorakhmundi	Asteraceae	Wh. Pl.	Jointis (Khairnar and Gadekar, 2019)
38	<i>Spilanthus paniculata</i> Wall. ex DC.	Akkalkara	Asteraceae	FL /IF	Teeth pain and Throught infection, Increase brain power and cough (Y.P., 2018)
39	<i>Tribulus terrestris</i> L.	Gokharu	Zygophyllaceae	FR	Kidney stones, painful urination and urinary disorder (Shinde, 2017)
40	<i>Tridax procumbens</i> L.	Ghawati	Asteraceae	L	Applied on Wound (Shinde, 2017)
41	<i>Withania somnifera</i> L.	Aswagandha	Solanaceae	Wh. pl.	Weakness and Weight loss (Kakulte and Gaikwad, 2014) (Khairnar and Gadekar, 2019) cold and fever (Y.P., 2018) (Shinde, 2017)
42	<i>Xanthium indicum</i> (L.) Koen	Landaga/ Lepadi	Asteraceae	L	Applied on animal wound (Kuvar and Bapat, 2010)

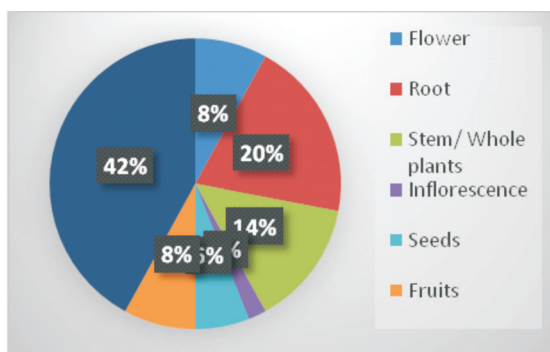


Fig. 2. Plant Parts and their % of Use

used more frequently and abundantly as compared to other families. The plants identified in the present study were found to be used in 26 different human disorders. Further, it was observed that the diverse plant herbs were specifically used to cure skin, fever, and mouth and stomach ailments.

Table 2. Plant Parts and their % of Use

Plant Part	No. of plant	%
Flower	4	8
Root	10	20
Stem/Whole plants	7	14
Inflorescence	1	2
Seeds	3	6
Fruits	4	8
Leaves	21	42

Conclusion

The tribal people of Surgana and Kalwan tehsil of Nasik district have an abundant natural source of herbs which are utilized by them as traditional medicines. The herbs identified in the present study can be further studied for morphological study and phytochemical analysis and hence used to cure vari-

Table 2. Name of Identified Plants, Number and Percentage

Sr. No	Name of Family	Number of Plants	% Genus/Species	Sr. No.	Name of Family	Number of Plants	% Genus/Species
1	Amaranthaceae	6	14.63	11	Poaceae	1	2.43
2	Polypodaceae	1	2.43	12	Euphorbiaceae	1	2.43
3	Asteraceae	10	24.39	13	Liliaceae	2	4.87
4	Papaveraceae	1	2.43	14	Apocynaceae	1	2.43
5	Nyctaginaceae	1	2.43	15	Labiatae	3	4.87
6	Sapandaceae	1	2.43	16	Lamiaceae	1	2.43
7	Caesalpinaceae	1	2.43	17	Portulacaceae	1	2.43
8	Apiaceae	1	2.43	18	Oxalidaceae	1	2.43
9	Cleomaceae	1	2.43	19	Zygophyllaceae	1	2.43
10	Commelinaceae	1	2.43	20	Solanaceae	5	12.19
				21	Acanthaceae	1	2.43
Total Families =21			Total Genus = 37	Total Species 42			

Table 3. Disease and numbers of plants used

Disease/ Disorder	No. of Plant used	Disease/ Disorder	No. of Plant used
Anticancer	1	Mouth Problem (Pyorrhoea, Throat, teeth)	5
Brain tonic,	1	Piles / Fissure	2
Cough/ Cold	3	Scorpion Sting	2
Diabetes	2	Sex Problem (Pre-ejaculation)	1
Dog bite	1	Skin Problem (Pimples, itching, Cracks)	8
Eye disease (Pain, irradiation)	3	Snake bite	3
Fever and Malaria	8	Stomach Problem (Liver complaint, Diarrhoea, Dysentery, Biliousness)	5
Hair Problem (hair loss, Dandruff, hair fall)	2	Termination of Pregnancy	1
Headache	1	Urinary Problems (Kidney stone, Urinary discharge, Inflammation, Thirst)	4
Jaundice	2	Weakness and Weight loss	1
Lungs problem (Asthma)	1	Wound application	3

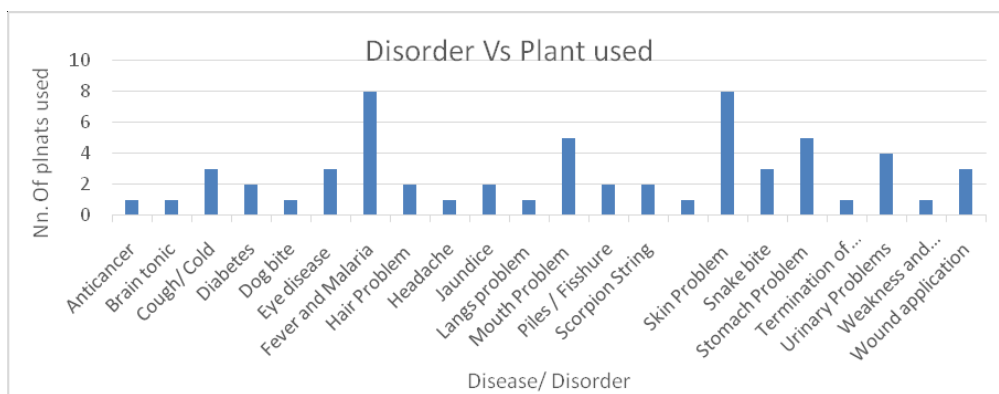


Fig. 3. Plants Used in Different Disorder

ous ailments and diseases in humans for the benefit of all people.

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