RESEARCH ARTICLE

USE OF ETHNO MEDICINAL PLANTS BY ETHNIC PEOPLE FOR THE TREATMENT OF DERMATOLOGICAL PROBLEMS

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Abstract: Medicinal plants are a rich source of active ingredients of secondary metabolites which provide a safer and cost effective way to treat diseases. The present article reviewed the published paper on ethno botanical plants used to treat the dermatological problems which are common in the West Bengal state of India and ethnic people of the state used locally available plant resources. A total of 74 plants belonging 69 genera and 36 families have been extracted for their therapeutic use against different skin related problems such as cuts, burns, infection, leucoderma, boils etc. Among all the plant parts, leaves were the most frequently utilized part of plant and most herbal remedies are prepared as paste, extract or juice and applied externally and were found to possess good healing property over a short period of time. The present study concluded that further clinical and phytochemical experimentation is needed.

Keywords: Medicinal plants, Ethnobotanical, Skin, Leucoderma, Juice, Ethnic

INTRODUCTION

Plants are always being important and used as traditional medicine, since the dawn of human civilization. Many studies have shown that over 80% of people in developing countries depend on the traditional medicines for their basic primary health care system (Bannerman, 1982). India which is known for its rich and diverse flora and fauna and considered as 12 mega diverse countries of the world with 16 agro climatic zones, 12 vegetative zones, 15 biotic provinces and 426 biomes with 15,000 medicinal plants, out of which 7,000 are used in Ayurveda, 700 in Unani and 600 in Siddha systems of medicine (Hoota and Chatterjee, 2016). In India there are many ethnic groups with rich cultural heritage which still using traditional herbal medicine for treating various skin diseases (Oyedemi et al., 2018; Newman and Cragg, 2007;Rahman et al., 2008). Skin disease is seldom deadly and has been estimated that it account for 34% of all occupational diseases and only plants have been the principal form of medicine throughout the world, as people strive to stay healthy in the face of chronic stress and pollution, and to treat illness with medicines that work in count with the body's own defense (Kohen, 1999). From the ancient times various types of skin diseases like boils, sores, leprosy, eczema, acne, leucoderma, ringworm etc. are treated completely with plant origin medicines but now a days clinical medicine takes some of its charm, but herbal treatmentsare still on its existence among the ethinic communities and gaining more attention around the world perhaps due to the long term use of western medicine induce severe complications.Medicinal plants are generally has a rich source of vitamins, antioxidants, essential oils and oils, hydrocolloids, proteins, terpenoids and other bioactive compounds (Dubey, 2004) which help in the treatment of various bacterial, fungal and viral skin diseases. Elaborate studies around the world have demonstrated that skin diseases are treated by herbal remedies from a variety of plant parts such as leaves, bark, stem, root, or fruit and these medicinal preparations are administered topically and may be applied in the form of cream, lotion, gel, soap, sap, solvent extract or ointment, and have also been established to possess antimicrobial properties (Smon et al., 2009).
The state West Bengal has varied climatic conditions and occupies rich biodiversity. The state has large no of ethinic communitywhich follow their own culture. Due to temperature, high rain fall and high humidity, skin disease is an issue among the poor communities which is somehow responsible for dermatological problems and presence of ethnic community with their traditional knowledge preferred mainly ethanomedicinal plants for their skin treatment.Many studies were already done in this area of research but in a scattered way and there is no such collective information of different plants used in the dematological problem across the state, Therefore, the present review article is extracted from different scientific literature of ethano medicinal plants used in dermatological problem in different regions of West Bengal. Only valid information of plants, plant part used, different ailments, its mode of application were considered in this study. So, the present study focused on the endangered use of ethanomedicinal plants by ethinic people for the treatment of dermatological problems

MATERIALS AND METHODS

The State of West Bengal is situated in the eastern part of the country between 21°20' and 27°32' N latitude and 85°50' and 89°52' E longitude with the

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Tropic of Cancer running across it. The total area of the state is 88,752 sq. km which is 2.7% of the total area in the country. The estimated population of West Bengal in 2009 was 87.8 million and has become 91.3 million as per the latest Census of India carried out in 2011 (WBSAP, 2011).The climate of the State is tropical and humid except in the northern hilly region which is close to the Himalayas. The temperature in the mainland normally varies between 24°C to 40°C during summer and 7°C to 26°C during the winter. The average rainfall in the State is about 1750 mm with considerable variation among the districts ranging between 1234 mm in Birbhum to 4136 mm in Jalpaiguri(WBSAP, 2011). Due to varied climatic conditions variation in biodiversity is vast. The state has highly dependent communities such as Gonds, Kol, Santal, Oraon, Munda, Lodha, Mech, Bedia, Bhumij, Mahali etc. on these valuable biodiversity resources and they commonly acquired a high value ethno-medicinal knowledge owing to their close affinity with the surrounding plant cover.

RESULT AND DISCUSSION

Composition of plants

There are number of plants are identified by researchers in different region of West Bengal and used by tribal people in their traditional way to treat different disordersuch as in Bankura it was 43 plant species, respectively (Sinhababu and Banerjee 2013), 115 plant species in Jalpaiguri **(**Bose *et al.*, 2015) and 35 plant species in Naxalbari (Biswakarma *et al*., 2015). In this study we observed atotal of 74 speciesbelonging to 43 species and 69 genera. The species are arranged in alphabetical order with their botanical name, local name, family, habitat, plant part used and mode of application were given in table 1. After exploring the data it is observed that the collected literature consists of 29 tree species (*Woodfordiafruticosa, Melastomamalabatricum, Azadirachta indica, Toonaciliataetc*), 26 herb species (*Hemidesmusindicus, Ecliptaprostrata, Bidenspilosa, Paederiafoetidaetc*), 11 shrub species (*Calotropis gigantean, Buddleja asiatica, Glycosmisarborea, Jatrophacurcasetc*), while least was observed in climber,creeper and grassin fig 1.

Dominating family recorded was Fabaceae (5 species, 4 genera), Asteraceae (4 species, 4 genera), Euphorbiaceae (4 species, 4 genera), Malvaceae (3 species, 3 genera), Moraceae (3 species, 3 genera) and so on in fig 2. Genera with maximum species recorded in *Terminalia* represented 3 species and *Cassia*, *Solanum* and *Trichosanthus* was represented by 2 species while *Abutilon, Aloe,Alstonia, Artocarpus*etcwere represented by one species in fig 3. Family with most dominant genera was recorded in Asteraceae, Euphorbiaceae, Fabaceae with 4 no of genera each while others species represent only 1 genera each. Similarly many studies revealed the use of diverse species in their skin problems (Kumar et al., 2010; Ghosh et al., 2013). Hota and Chatterjee (2016) observed 37 plants belonging to 26 families were documented for their skin therapeutic use in PaschimMedinipur region.

Nagariya*et al*., 2010 reported the use of medicinal plants for healing of skin diseases in different regions of India. The plant parts used for medicinal purpose are leaves, root, stem, fruits, the complete aerial parts the whole plants barks and flower. However, leaves were found most requently used parts (Jatav*et al.*, 2013). After reviewing the collected literature it is observed that based on their traditional knowledge, people used different plant parts with different modes of preparation for curing their no. of ailments related to skin. The most dominating plant part used by different tribal communities for different species were leaves (*Psidiumguajava, Pterocarpusmarsupium, Alstoniascholaris, Cassia alataetc*) followed by all above ground parts (*Peperomia pellucid, Solanumamericanum, Bidenspilosa, Elephantopusscaberetc*) and seeds (*Madhuca indica, Entadarheedii, Caesalpinia crista, Millettiapinnataetc*)in fig 4.Other plant parts like bark, stem, latex, rhizome, twigs, flower, fruits etc are also used but only few plants fall under these groups. Most of the ethnobotanical studies confirmed that the leaves are the major portion of the plant used in the treatment of diseases **(**Ignacimuthu*et al*., 2008; Choudhury*et al.*, 2012).

Ethano medicinal plants are used by ethinic communities as per their cultural belief for the treatment of different dermatological problem by using different mode of preparation as well as administration of recipe used in the treatments of the Skin Diseases.It was observed that recipes are prepared from combination of different parts from two or more plant species including leaves, seeds and stem (bark). Preparations mostly preferred are by grinding, infusion and paste.Several studies have enumerated the plants used for wound healing and skin diseases in various parts of the world (Chah*et al*., 2006; Harsha*et al.*, 2003).

CONCLUSION AND RECOMMENDATION

Ethnobotany and Ethnopharmacology are interdisciplinary fields of research that look in particular at the pragmatic information of indigenous peoples pertaining to medicinal substances, their possible health benefits and their health risks associated with such remedies.This extracted material belongs to a number of plants of this region used to cure dermatological problem and probably it could be of considerable interest in the development of new drugs.But these plant species remain unevaluated for pharmacological values.Once its validated community benefit sharing approach will be beneficial for tribals. Financially.Although local efforts to conserve medicinal plant resources are still

inadequate, the long held traditional beliefs of the population regarding folk medicine has its own unintentional role in conservation, management and sustainable utilization.

Table 1. Documented list of plant species along with family, part used, diseases, mode of application and habitat

S.N.	Species Name	Family	Local Name	Part Used	IUCN status	Disease	Mode of application	Habitat	References
1	*Abutilon indicum*	Malvaceae	Petari	Root and seeds	CL	Scabies, boils and abscess	Root paste applied on boils and abscess. Seed oil used for scabies	Shrub	Ghosh*et al.*, 2013
2	*Achyranthes bidentata*	Amaranthaceae	Chorkanta	Roots and leaves	CL	Boils and acne	Applied root-paste and leaf juice on affected area	Herb	Ghosh*et al*.,2013
3	*Aloe vera*	Liliaceae	Ghritkumari	Leaves	CL	Rough skin	Fresh leaf juice smear on skin	Herb	Ghosh., 2008
4	*Alstoniascholaris*	Apocynaceae	Chhatim	Leaves	LC	Skin disease	Crushed leaves applied on affected area.	Tree	Saha*et al.*, 2013
5	*Andrographis paniculata*	Acanthaceae	Kalmegh	Whole plant	CL	Boils	Leaf paste cure boils.	Herb	Rahaman *et al.*, 2015
6	*Artocarpusheterophyllus*	Moraceae	Kathal	Leaves	CL	Boil and skin diseases.	Leaf used in boil, wound and skin diseases.	Tree	Ghosh ., 2008; Bose.,2011
7	*Azadirachta indica*.	Meliaceae	Nim	Leaves	LC	Boils and skin disorders	Leaf-paste applied on affected area	Tree	Ghosh*et al.*, 2013; Sinhababu*et al.*, 2013;
8	*Bidenspilosa*	Asteraceae	Murti	Whole plant	CL	Skin disease and check bleeding	Whole plant paste used in treatments.	Herb	Saha*et al.*, 2013
9	*Brassica campestris*	Brassicaceae	White sarisha	Seeds	CL	Acne and alopecia	Seeds of white sarisha and til (1:1 ratio) are made into paste and externally applied on head in alopecia and face for acne	Herb	Ghosh ., 2008
10	*Buddleja asiatica*	Buddlejaceae	Gorumara	Leaves	LC	Skin disease	Leaf juice used in skin complaints	Shrub	Saha*et al.*, 2013
11	*Buteamonosperma*	Fabaceae	Palash	Leaves	LC	Boils, pimples, skin diseases	Leaf-paste are used for the treatment	Tree	Ghosh*et al.*, 2013
12	*Caesalpinia crista*	Caesalpiniaceae	Karanj	Seed	CL	Alopecia, boils and wounds	Seed oil used in affected area.	Tree	Ghosh ., 2008
13	*Calotropisgigantea*	Asclepiadaceae	Akana	Leaves and latex	CL	Sores and skin disease	Leaves and latex is directly applied on affected area	Shrub	Saha*et al.*, 2013
14	*Sennaalata*	Fabaceae	Chakora	Leaves	LC	Skin disease	Leaf pest is used to treat skin disease.	Tree	Bose *et al*.,2015
15	*Cassia fistula*	Caesalpiniaceae	Bandar lathi, Amaltus	Root	LC	Skin disease	Root pastes are used for skin disease	Tree	Saha*et al.*, 2013; Sinhababu*et al.*, 2013
16	*Clerodendrumviscosum*	Verbenaceae	Ghentu	Root and stem	CL	Skin disease	Leaf paste is used against skin disease	Shrub	Bose *et al*.,2015
17	*Colebrookeaoppositifolia*	Lamiaceae	Dhursuli	Leaves	CL	Skin infection	Leaves and root extract used in skin infection	Shrub	Saha*et al.*, 2013

18	*Curcuma longa*	Zingiberaceae	Halud	Rhizome	CL	Skin diseases and boil	Rhizome paste applied to treat skin diseases	Herb	Bose *et al*.,2015; Rahaman *et al.*, 2015
19	*Daturametel*	Solanaceae	Datura	Leaves	CL	Boils and abscess	Leaf paste are warmed and applied on affected area	Herb	Ghosh.,2008
20	*Ecliptaprostrata*	Asteraceae	Keshute	Whole plant	LC	Skin diseases	Whole plant extraction used for skin diseases	Herb	Saha*et al.*, 2013; Bose *et al*.,2015; Sinhababu*et al.*, 2013;
21	*Elephantopusscaber*	Asteraceae	Mejurjhuti	Whole plant	CL	Boil	Half-burnt plant is made into powder and mixed with coconut oil and applied on the boil.	Herb	Rahaman *et al.*, 2015
22	*Eleusinecoracana*	Poaceae	Marwa	Grains	LC	Small pox	Grains are used for treatment	Cereal	Saha*et al.*, 2013
23	*Entadarheedii*	Fabaceae	Gila	Seeds	CL	Astringent	Seeds used in treatment	Herb	Saha*et al.*, 2013
24	*Equisetum debile*	Equisetaceae	Ashalj	Whole plant	LC	Astringent	Aerial parts of plant used as astringent	Creeper	Saha*et al.*, 2013
25	*Euphorbia pulcherrima*	Euphorbiaceae	Lalpata	Leaves and flowers	LC	Skin disease	Leaves and flowers used for treatment	Shrub	Saha*et al.*, 2013
26	*Evolvulusalsinoides*	Convolvulaceae	Shankhyapuspi	Whole plant	CL	Leucoderma	Whole plant extraction used to treat leucoderma.	Herb	Sinhababu*et al.*, 2013
27	*Ficusreligiosa*	Moraceae	Aswatha	Bark	CL	Skin disease and leucoderma	Bark is used as antiseptic and astringent. Bark used in leucoderma.	Tree	Sinhababu*et al.*, 2013
28	*Glycosmisarborea*	Rutaceae	Ashshewra	Root	CL	Skin diseases	Root powder used for treatment	Shrub	Bose *et al*.,2015
29	*Gynocardia odorata*	Achariaceae	Chalmogra	Fruits and seeds	CL	Skin diseases	Fruits and seeds used for treatment	Tree	Saha*et al.*, 2013
30	*Hedyotisscandens*	Rubiaceae	Dhupjhora	Root	CL	Boils	Root extract applied on affected area	Climber	Saha*et al.*, 2013
31	*Hemidesmus indicus*	Asclepiadacaea	Anantmul	Root	CL	Miliariarubra	Root juice rubbed on the body.	Herb	Ghosh.,2008
32	*Hibiscus rosa-sinesis*	Malvaceae	Jaba	Leaves	CL	Boils and skin diseases	Leaves used to treat mild burns, boils and skin diseases.	Shrub	Ghosh*et al.*, 2013; Bose *et al*.,2015
33	*Holarrhena pubescens*	Apocynaceae	Kurchi	Bark	LC	Skin eruption	Bark used to treat skin eruption, irritation.	Tree	Saha*et al.*, 2013;
34	*Jatrophacurcas*	Euphorbiaceae	Bherenda	Fresh latex and seed	EN	Skin diseases	Seeds and smeared latex are used for treatment	Shrub	Ghosh.,2008
35	*Leucaspluke netii*	Labiatae	Parbolaphang	Leaves and flowers	CL	Chronic skin eruptions	Leaves and flowers used to treat chronic skin eruptions	Herb	Bose.,2011
36	*Lippia alba*	Verbenaceae	YuetoryGach	Leaves	CL	Skin diseases	Leaves are used against skin disease.	Herb	Bose *et al*.,2015

37	*Madhuca indica*	Sapotaceae	Mahua	Seed	CL	skin diseases	Barks are used	Tree	Sinhababu*et al.*, 2013
38	*Mallotusphilippensis*	Euphorbiaceae	Sindure	Leaves and fruits	CL	Skin diseases	Leaves and fruit are used for treatment	Tree	Saha*et al.*,2013
39	*Melastomamalabathricum*	Melastomataceae	Futki	Leaves	CL	Boils and skin trouble	Leaf paste used against boils and skin trouble.	Tree	Bose *et al.*,2015; Saha*et al.*, 2013
40	*Pongamispinnata*	Fabaceae	Karajdare	Seeds	LC	Boil, heel crack and itching	Seed oil is applied for itching and boil on affected area, seed oil is warmed and massaged on the heel crack	Tree	Rahaman *et al.*,2015
41	*Mimosa pudica*	Mimosaceae	Swetlajjabati	Leaves,	LC	Inflammation, leucoderma and small pox	Applied and drink juice of leaf	Herb	Ghosh.,2008**;** Saha*et al.*, 2013
42	*Morusaustralis*	Moraceae	.	Leaves	CL	Burning sensation	Paste of plant part are used for treatment	Tree	Saha*et al.*, 2013
43	*Ocimum tenuiflorum*	Lamiaceae	Tulsi	Leaves, seeds and roots	CL	Skin disease	Paste and extract of plant part used for treatment	Herb	Saha*et al.*, 2013
44	*Oroxylum indicum*	Bignoniaceae	Sona	Fruits, seed and bark	CL	Leucoderma and inflammation	Paste of hydrated fruits or seed or bark applied	Tree	Saha*et al.*, 2013
45	*Oxalis corniculata*	Oxalidaceae	Amarul	Whole plant	CL	Skin disease	Whole plant extraction used as antiseptic agent and skin disease.	Creeper	Saha*et al.*, 2013
46	*Paederiafoetida*	Rubiaceae	Gondhopata	Leaves and stem	CL	Inflammation	Leaves used	Herb	Saha*et al.*, 2013
47	*Peperomiapellucida*	Piperaceae	Luchipata	Whole plant	CL	Boils	Whole plant paste used against boils	Herb	Bose *et al.*,2015
48	*Phlogacanthusthyrsiflorus*	Acanthaceae	Rambhang	Leaves	CL	Astringent	Leaves extract and its paste	Shrub	Saha*et al.*, 2013
49	*Phoenix sylvestris*	Arecaceae	Khajuur	Seed	CL	Inflammation	Seed paste for inflammation and wounds.	Tree	Sinhababu*et al.*, 2013
50	*Portulacaoleracea*	Portulacaceae	Nona Sak	Leaves	LC	Inflammation	Leaf extraction used in inflammation	Herb	Sinhababu*et al.*, 2013
51	*Psidiumguajava*	Myrtaceae	Peyara	Leaves	LC	Skin diseases	Leaf paste applied on affected area.	Tree	Saha*et al.*, 2013;
52	*Pterocarpus marsupium*	Papilionaceae	Murga	Leaves		Skin diseases	Leaf juice is useful for skin diseases.	Tree	Sinhababu*et al.*, 2013
53	*Rhus chinensis*	Anacardiaceae	Bhalay	Fruits	LC	Swelling and wounds	Fruits are used for treatment	Tree	Saha*et al.*, 2013
54	*Ricinus communis*	Euphorbiaceae	Eradom	Bark	CL	Skin inflammation	Bark is used to treat skin inflammations and rashes.	Tree	Saha*et al.*, 2013;Rahaman *et al.*,2015
55	*Scopariadulcis*	Scrophulariaceae	Ban dhane	Leaves	CL	Boil	Leaf extraction used in burning sensation in pulmonary artery and veins. Leaf is used against boils	Herb	Bose *et al.*,2015; Saha*et al.*, 2013

56	*Semecarpus anacardium*	Anacardiaceae	Bhallataka	Bark and fruits	CL	Skin disease and inflamation	Bark and fruits are used for the treatment.	Tree	Saha*et al.*, 2013
57	*Sesamum indicum*	Pedaliaceae	Til	Seeds	CL	Acne	Seed of both til and white sarisha (1:1) crushed and applied on acne, til along with white mustard seeds are also applied	Herb	Ghosh.,2008; Ghosh*et al.*, 2013
58	*Shorearobusta*	Dipterocarpaceae	Sal	Leaves	LC	Astringent	Leaves used as astringent	Tree	Saha*et al.*, 2013
59	*Sidaacuta*	Malvaceae	Sweat barela,	Leaves and roots	CL	Boil	Leaf prevents boils	Shrub	Bose *et al*.,2015
60	*Solanumamericanum*	Solanaceae	Kalabegun	Whole plant	CL	Skin diseases and wounds	The whole plant and tender shoot is useful	Herb	Saha*et al.*, 2013
61	*Solanumverginianum*	Solanaceae	Gorupbegun	Root	CL	Small pox	Root paste dry tablet act as antidote in small pox	Herb	Ghosh.,2008
62	*Sonchusasper*	Asteraceae		Whole plant	CL	Boil	Whole plant extract used to treat wounds and boils.	Herb	Bose *et al*.,2015
63	*Stephania japonica*	Menispermaceae	Akundi	Rhizome	CL	Skin diseases	Rhizome used as astringent	Vine	Bose., 2011
64	*Terminalia arjuna*	Combretaceae	Arjun	Bark	CL	Skin diseases and leucoderma	Bark of young stem paste is applied externally in skin diseases.	Tree	Ghosh*et al.*, 2013; Sinhababu*et al.*, 2013
65	*Terminalia bellirica*	Combretaceae	Bahera	Seed	CL	Skin diseases and leucoderma	Seed oil is used for skin disease and leucoderma	Tree	Sinhababu*et al.*, 2013
66	*Terminalia chebula*	Combretaceae	Haritaki	Fruit	CL	Skin diseases	Fruits used as astringent	Tree	Saha*et al.*, 2013
67	*Thysanolaena maxima*	Poaceae	Jharu	Stem and root	CL	Boils	Paste used in boils	Grass	Saha*et al.*, 2013
68	*Tinosporacordifolia*	Menispermaceae	Guduchi	Leaves	CL	Skin disease	Leaf paste applied on affected area.	Herb	Saha*et al.*, 2013
69	*Toonaciliata*	Meliaceae	Toon	Bark	LC	Astringent	Bark used as astringent.	Tree	Saha*et al.*,2013
70	*Trichosanthescordata*	Cucurbitaceae	Vitechhara	Young twig	CL	Skin diseases	The young twig is used in the treatment	Herb	Saha*et al.*, 2013
71	*Trichosanthesdioica*	Cucurbitaceae	Patol	Fruit	CL	Chicken pox	Juice extracted from the roasted fruits is used as oil to the chicken pox scar.	Climber	Ghosh.,2003
72	*Vitexnegundo*	Verbenaceae	Nishinda	Leaves	LC	Inflammation	Leaf juice is useful for inflammation	Shrub	Saha*et al.*, 2013
73	*Woodfordiafruticosa*	Lythraceae	Dhai	Flowers and bark	LC	Boils	Flowers and bark paste used for the treatment	Tree	Saha*et al.*, 2013
74	Ziziphusmauritiana	Rhamnaceae	Kul	Leaves	LC	Boils	Leaf paste applied on affected area	Tree	Saha*et al.*, 2013

IUCN Category:EN- Endangered; LC- Least Concerned; NT- Near Threatened; CL-Catalogue of Life

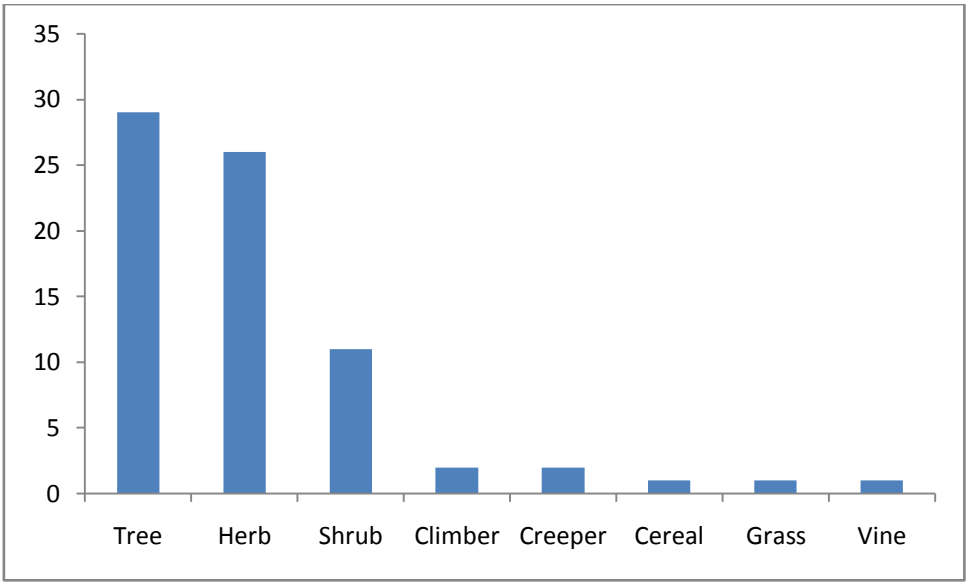

Fig 1. Life form of reported flora

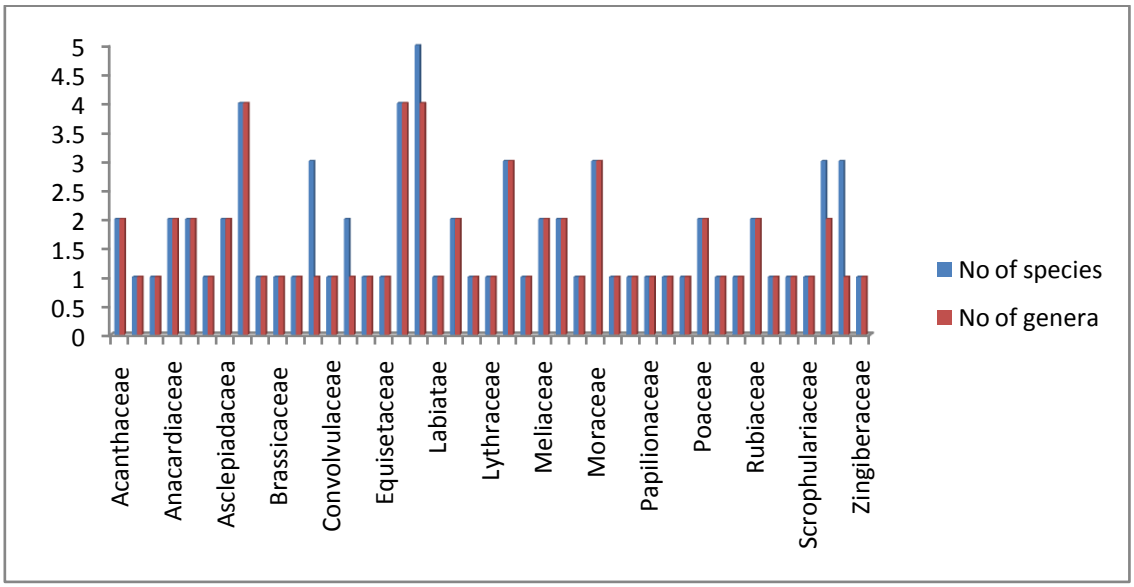

Fig 2. Recorded families, their species and No. of genera

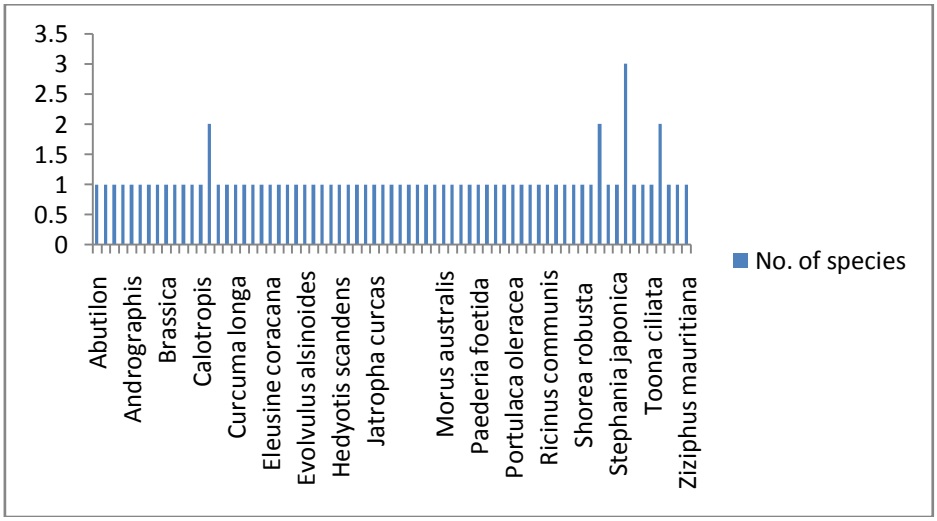

Fig 3. Genus with their no. of species

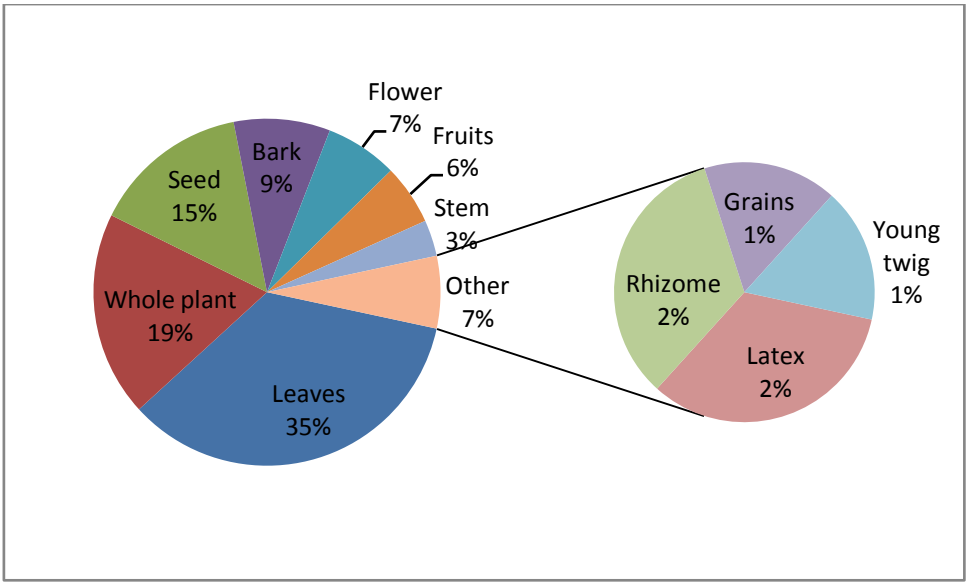

Fig 4. Plant part used of different flora

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