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Ethno-medicinal plants used for the treatment of skin diseases from the southern parts of West Bengal, India

Achintya Kumar Samanta

Department of Botany, Ramnagar College (Affiliated to Vidyasagar University), Depal- 721 453, Purba Medinipur, W.B., India

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ABSTRACT

Present investigation recorded 62 species (dicots 56 and monocots 6) of ethno-medicinal plants under 56 genera (dicots 50 and monocots 6) and 32 families (dicots 27 and monocots 5) for the treatment of skin diseases and its related diseases such as crack, eczema, pimples, ringworm, scabies and urticaria. Maximum number of species (8) was recorded in the family Fabaceae. As many as 20 plant parts were recognised as sources of ethno-medicines. Leaf (21) is the maximum source of such medicines for treating skin diseases. Present initiatives have been taken to record the plants to treat skin diseases and its related problems by using traditional medicines (phyto-medicines) which are generally used by the people of the southern parts of West Bengal.

Introduction

In nature there are bounties of plants with different habit groups. These plants bear different kinds of potential medicinal properties. Before the all-round human civilization, the aboriginal people are started their habitation near the forest and its vicinity. So they first started the uses of these plants and their different parts like root, stem, bark, flower, fruit, latex, etc for remedies of their daily life problems / or ailments. Initially they got satisfactory results by using these plants as medicines for the treatments of different diseases and problems. Subsequently as they were not very much aware of the uses of particular dose, efficacy, potentialities of traditional medicines, in most of the cases they failed to cure their ailments permanently. But with the accumulation of more and more

knowledge on these plants they gradually are habituated to the use of these medicines and they realised that their diseases /problems can be tackled easily in their daily life. Later, with the development of modern medicines based on synthetic chemical molecules, they realised that these modern medicines are not only costly but may also have so many side effects. So, they depended more and more on the uses of traditional medicines and the remote village people gradually become accustomed with these medicines giving priority for use in their daily lives. In course of time these traditional medicines paved its entry to the civil society.

We the human beings face common diseases like diabetes, ulcers, diarrhoea, asthma, ophthalmic, kidney problems, piles, dysentery etc in our everyday life. The skin disease is one of them. Skin diseases are of different kinds

such as eczema, ringworms, scabies, etc. Traditional medicinal properties, especially of plants have been found to play an important role by their administration in dermatological conditions (Ram *et al.*, 2004). So to combat various skin diseases, proper uses of phyto-medicines are to be inspired to the local village people.

Literature survey:

A large number of papers, literatures of phyto-medicines / ethno-medicines have been published in India including West Bengal by eminent plant explorers, researchers (Pant *et al.*, 1993; Namhata & Ghosh, 1993; Pal & Jain, 1998; Paul, 2003; Pakrashi & Mukhopadhyay, 2001; Ghosh, 2003; Paria, 2005; Chakraborty & Bhattacharjee, 2006; Samanta & Biswas, 2009; Dey & De, 2010; Chanda & Mukherjee, 2011a; Das, 2012; Mallick *et al.*, 2012. Das & Ghosh, 2017; Biswas *et al.*, 2016; Mukherjee *et al.*, 2016; Biswas & Mukherjee, 2017a; Biswas & Chatterjee, 2018; Chaudhury *et al.*, 2018). These literatures have been consulted and relevant references have been given.

Objectives of the present study:

Present initiatives have been taken to record the plants to cure skin diseases and its related problems by using traditional medicines (phyto-medicines) [Table-1] which are commonly used by the people of the southern parts of West Bengal.

Materials and Methods

The study areas:

The Southern parts of West Bengal consist of

four districts (Purba Medinipur, Paschim Medinipur, Bankura and Purulia). Though the climatic variations, physiographic make up are not very much sound enough among them but there are growing different types of plant groups. An overall climate is of tropical type. The soils of the four districts are varied. The soils of Purulia, Bankura and Paschim Medinipur are mostly of lateritic type but in Purba Medinipur it is generally of alluvial type. Sal forest is very much common in Paschim Medinipur district. The temperature of four districts varies from 34 °C to 44°C in summer and goes down to at around 9°C in winter. The average annual rainfall is about 1400 mm.

Collection of specimens /data

Collections of specimens were made in different parts of study areas in different seasons of the year during January 2018 to December 2018. Field and herbarium techniques were followed as recommended by Jain & Rao (1977). The identification of collected specimens was made with the help of literatures (Parin, 1903; Haines, 1921-1925; Duthie, 1960). The collected specimens were deposited at Ramnagar College Herbarium. The website of The Plant List (<http://www.plantlist.org>) was consulted for updating the species names. The list of accepted names were arranged alphabetically along with their botanical name, local name, family, parts used and mode of administration for treating the types of skin diseases and were presented in tabulated form (Table-1).

Pertinent literatures, published papers of plant explorers, researchers (Chopra *et al.*, 1956;

Kirtikar & Basu, 1975; Jain, 1991; Martin, 1995; Anonymous, 2010; Lal & Singh, 2012; Panigrahi & Sahu, 2013; Tripathi *et al.*, 2013; Chanda & Mukherjee, 2014; Mandal *et al.*, 2014; Sannigrahi, 2014; Rahaman & Karmakar, 2015; Biswas & Mukherjee, 2017b) were consulted for more information regarding the medicinal values to cure skin diseases, in addition to our

personal and local people's experiences.

Observations

Present investigation recorded 62 species (dicots 56 and monocots 6) of ethno-medicinal plants under 56 genera (dicots 50 and monocots 6) and 32 families (dicots 27 and monocots 5) regarding the treatment of skin diseases.

Table-1: List of plants used for the treatments of skin diseases in human beings

Sl. No.	Botanical name	Local name	Family	Parts used	Mode of applications
1.	<i>Abrus precatorius</i> L.	Kunch (Lal)	Fabaceae	Leaf	Fresh paste of leaves is used to cure scabies
2.	<i>Acalypha hispida</i> Burm.f.	Shibjata	Euphorbiaceae	Leaf	Fresh leaf extract is used to treat skin disease
3.	<i>Acalypha indica</i> L.	Muktajhuri	Euphorbiaceae	Leaf	Paste is used to cure scabies
4.	<i>Ageratum conyzoides</i> (L.) L.	Uchunti	Asteraceae	Leaf	Fresh leaves extract is used on infected skin
5.	<i>Allium sativum</i> L.	Rasun	Liliaceae	Bulb	<i>Allium</i> paste is used to treat urticaria
6.	<i>Aloe vera</i> (L.) Burm.f.	Ghritakumari	Liliaceae	Leaf	Fleshy/ succulent leaves paste is used over to eczema
7.	<i>Alstonia scholaris</i> (L.) R.Br.	Chhatim	Apocynaceae	Leaf/Latex	Latex with kusum oil is used to treat scabies
8.	<i>Argemone mexicana</i> L.	Sial kanta	Papaveraceae	Root	Root is used to treat skin disease
9.	<i>Argyreia nervosa</i> (Burm.f.) Boj.	Bijtarak	Convolvulaceae	Leaf	Leaves paste externally used to treat skin disease
10.	<i>Azadirachta indica</i> A. Juss.	Nim	Meliaceae	Leaf	Neem leaves extract is used to cure skin disease
11.	<i>Bauhinia acuminata</i> L.	Sewtkanchan	Fabaceae	Bark & Leaf	Bark & leaves paste is used to cure skin disease
12.	<i>Bauhinia racemosa</i> Lam.	Ban Raj	Fabaceae	Bark & Leaf	Bark & leaves paste is used to cure skin disease
13.	<i>Bidens pilosa</i> L.	Phutium	Asteraceae	Whole plant	To treat skin related problems
14.	<i>Borassus flabellifer</i> L.	Tal	Arecaceae	Fruits	Pulp is used to treat skin disease
15.	<i>Caesalpinia bonduc</i> (L.) Roxb	Natakaranja	Fabaceae	Seed	Seed is used to treat skin disease
16.	<i>Calotropis gigantea</i> L.	Akanda	Asclepiadaceae	Leaf latex	Fresh leaf latex is used to treat skin disease
17.	<i>Cascabela thevetia</i> (L.) Lippold	Kalkephul	Apocynaceae	Leaf	To treat skin disease
18.	<i>Cassia fistula</i> L.	Bandar lathi	Fabaceae	Bud & Flower	Buds & flowers are used to treat skin disease
19.	<i>Cestrum nocturnum</i> L.	Rat Ki Rani	Solanaceae	Leaf	Leaf paste is used to treat skin disease
20.	<i>Cheilocostus speciosus</i> (J. Koenig) C.D. Speght	Kemuk	Costaceae	Root	Root paste is used to treat skin disease
21.	<i>Chrozophora plicata</i> A. Juss.	Kshudi okra	Euphorbiaceae	Leaf	Fresh leaf paste is used to treat skin disease
22.	<i>Cinnamomum verum</i> J. Presl	Daru chini	Lauraceae	Stem Bark	Bark is used to treat eczema
23.	<i>Cleome viscosa</i> L.	Hurhurria	Capparidaceae	Leaf	Leaf paste is used to treat skin disease
24.	<i>Clerodendrum infortunatum</i> L.	Ghetu	Verbenaceae	Leaf & Root	Leaves & roots are used to treat skin disease
25.	<i>Coccinia grandis</i> (L.) Voigt.	Telakucha	Cucurbitaceae	Flower	Flower is used to treat skin disease
26.	<i>Combretum decandrum</i> Roxb.	Alang	Combretaceae	Seed	Seed oil is used to treat skin disease
27.	<i>Crataeva roxburghii</i> R.Br.	Barun	Capparidaceae	Stem-bark	Decoction of stem-bark is used to treat skin disease

Sl. No.	Botanical name	Local name	Family	Parts used	Mode of applications
28	<i>Curcuma amada</i> Roxb.	Am ada	Amaryllidaceae	Rhizome	Rhizome paste is used to treat skin disease
29	<i>Eucalyptus globulus</i> Labill.	Eucalyptus	Myrtaceae	Leaf	Leaf decoction is used to treat skin disease
30	<i>Euphorbia pulcherrima</i> Willd.	Lalpata	Euphorbiaceae	Leaf & Flower	Useful to treat skin disease
31	<i>Glycosmis pentaphylla</i> (Retz.) Correa	Ban jami	Rutaceae	Leaf	Leaf paste is used to treat skin disease
32	<i>Ipomoea batatas</i> (L.) L.	Ranga alu	Convolvulaceae	Whole plant	Used to treat skin disease
33	<i>Ipomoea pes-caprae</i> Sweet	Chhagalkuri	Convolvulaceae	Whole plant	Used to treat skin disease
34	<i>Jatropha multifida</i> L.	Tortora	Euphorbiaceae	Fruits	Used to treat skin disease
35	<i>Leonotis nepetifolia</i> (L.) R.Br.	-	Lamiaceae	Flower	Ashes of flower head is used to treat ringworm
36	<i>Leucas aspera</i> (Willd.) Link	-	Lamiaceae	Leaf	Juice of leaf is used to treat skin disease
37	<i>Lindenbergia indica</i> (L.) Kuntze	Halud Basanta	Scrophulariaceae	Whole plant	Used to treat skin disease
38	<i>Nerium oleander</i> L.	Karabi	Apocynaceae	Leaf	Decoction of leaf is used to treat skin disease
39	<i>Nicotiana plumbaginifolia</i> Viv.	-	Solanaceae	Leaf	Decoction of leaf is used to treat skin disease
40	<i>Ocimum sanctum</i> L.	Tulsi	Lamiaceae	Leaf	Decoction of fresh leaves are used to treat skin disease
41	<i>Piper nigrum</i> L.	Golmirich	Piperaceae	Leaf	Leaf paste is used externally to ringworm
42	<i>Plumbago zeylanica</i> L.	Chitrak	Plumbaginaceae	Leaf	Leaf extract is used at infected skin disease
43	<i>Psoralea coryfolia</i> L.	Hakuchi	Fabaceae	Fruits & seeds	Paste is used to treat skin disease
44	<i>Schleichera oleosa</i> (Lour.) Oken	Kusum	Sapindaceae	Stem Bark	To treats skin diseases
45	<i>Senna tora</i> (L.) Roxb.	Chakunda	Fabaceae	Leaf & seeds	Paste is used to treat skin disease
46	<i>Sida rhombifolia</i> L.	Peetbala	Malvaceae	Stem	To treat skin disease
47	<i>Solanum lycopersicon</i> L.	Bilatibegun	Solanaceae	Fruit	Fruit juice is used to treat scabies externally.
48	<i>Solanum nigrum</i> L.	Kakmachi	Solanaceae	Young shoot	Young shoot paste is used to treat skin disease
49	<i>Solanum surattense</i> Burm.f.	Kantakari	Solanaceae	Root	Paste is used to treat scabies
50	<i>Solanum torvum</i> Sw.	Titabegun	Solanaceae	Root	To heal cracks in feet
51	<i>Tectona grandis</i> L.f.	Segun	Verbenaceae	Wood	Timber oil is used to treat eczema
52	<i>Tephrosia purpurea</i> (L.) Pers.	Ban-neel	Fabaceae	Whole plant	Used to treat the eczema
53	<i>Terminalia chebula</i> Retz.	Haritaki	Combretaceae	Fruits	Used to treat skin disease
54	<i>Tinospora sinensis</i> (Lour.) Merr.	Gulancha	Menispermaceae	Stem	Used to treat skin disease
55	<i>Tribulus terrestris</i> L.	Kantagokhur	Zygophyllaceae	Root & fruit	Used to treat skin disease
56	<i>Tridax procumbens</i> L.	Targanda	Asteraceae	Leaf	Fresh leaf paste is used to cure scabies
57	<i>Triumfetta rhomboidea</i> Jacq.	Banokra	Tiliaceae	Root	Paste is used to treat pimples
58	<i>Ventilago denticulata</i> Willd.	Raktapita	Rhamnaceae	Stem bark	Used to treat skin disease
59	<i>Vitex negundo</i> L.	Nishinda	Verbenaceae	Seed	Used to treat skin disease
60	<i>Wedelia chinensis</i> (Osbeck) Merr.	Bhingaraj	Asteraceae	Leaf	Leaf juice is used to treat scabies
61	<i>Withania somnifera</i> (L.) Dunal	Aswagandha	Solanaceae	Root & Leaf	Used to treat scabies
62	<i>Zingiber zerumbet</i> (L.) Roscoe ex Sm.	Kulango	Zingiberaceae	Rhizome	Paste is used to treat skin disease

Table-2: Taxonomic breakup of the medicinal plants from the southern parts of West Bengal

Plant groups	Families	Genera	Species
Dicots	27	50	56
Monocots	5	6	6
TOTAL	32	56	62

Table-3: Types of skin diseases and their number of species

Types of diseases	Number of species
Crack	1
Eczema	4
Pimple	1
Ringworm	2
Scabies	8
Skin disease	45
Urticaria	1
TOTAL	62

Table-4: Types of parts and their number of uses

Parts	Number of uses
1. Bark & leaf	2
2. Bud & flower	1
3. Bulb	1
4. Flower	2
5. Fruit	4
6. Fruits & seeds	1
7. Leaf	21
8. Leaf & flower	1
9. Leaf & root	2
10. Leaf & seed	1
11. Leaf Latex	2
12. Rhizome	2
13. Root	5
14. Root & fruit	1
15. Seed	3
16. Stem	2
17. Stem bark	4
18. Whole plant	5
19. Wood	1
20. Young shoot	1
TOTAL	62

Discussion

Present investigation recorded 62 species [Table-1] of ethno-medicinal plants from the southern parts of West Bengal for treating 7 different types of skin disease and its related diseases such as crack, eczema, pimples, ringworm, scabies and urticaria [Table-3]. To fight against the above mentioned skin related diseases, anti-dots (medicines) were extracted basically from the different parts [bark and leaf (2); Bud & flower (1); Bulb (1); Flower (2); Fruit (4); Fruits & seeds ((4); Leaf (21); Leaf & flower (1); Leaf & root (2); Leaf & seed (1); Leaf Latex (2); Rhizome (2); Root (5); Root & fruit (1); Seed (3); Stem (2); Stem bark (4); Whole plant (5); Wood (1) and Young shoot (1)] of 62 medicinal plant species [Table-4]. With keen investigation it was observed that skin disease (45) is very much predominant followed by scabies (8), eczema (4), ringworm (2), cracks (1), pimple (1) and urticaria (1) [Table-3].

Conclusion

Our mother earth is the treasure house of enormous number of medicinal plants. Unfortunately we are losing these medicinal plants gradually due to progressive urbanisation, indiscriminate forest destruction, pollution, ecological fragmentation, disruption of food web, habitat destruction, pollinator reduction, elimination of keystone species and over exploitation of important species like *Abrus precatorius*, *Aloe vera*, *Alstonia scholaris*, *Azadirachta indica*, *Caesalpinia bonduc*, *Cinnamomum verum*, *Ocimum sanctum*, *Piper nigrum*, *Solanum*

nigrum, *Terminalia chebula*, *Tinospora sinensis*, *Withania somnifera* etc from their natural habitats. Recently the attitude of our present generation towards the biodiversity conservation is changing rapidly in a large scale; as a result the acceptance of biodiversity is also losing its importance. So with a view to protect our biodiversity and for the interest of the sustainable future generation, these bio-resources (phyto-resources) can be protected not only by the implementation of conservational measures (*ex-situ* & *in-situ*) but also the mass involvement of the local people. As a result we can conserve these potential medicinal plants from their extinction to a certain extent.

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