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INVESTIGATION OF ETHNO MEDICINAL PLANTS FOR THE TREATMENT OF CARBUNCLES FROM PURULIA DISTRICT OF WEST BENGAL

Dulal Chandra Das[1*], Ghanashyam Mahato[2], Monalisa Das[3] and Manik Lal Pati[1]
[1]Department of Botany, Raja N.L. Khan Women's College, Midnapore, West Bengal, India.
[2]Department of Botany, A.M. College, Jhalda, Purulia, West Bengal, India.
[3]Department of Dietetics and Nutrition, VIH, Midnapore, West Bengal, India.

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Abstract: Purulia, the western most district of West Bengal lies between 22°60' and 23°50' north latitude and 85°76' and 86°65' east latitude. Almost twelve ethnic groups (Bhumij, Birhor, Gond, Ho, Kharia, Kharwar, Kurmi, Lodha, Malpaharya, Munda Oraon, Santal) present in this district. The tribal people who reside in a very remote rural areas are fully dependent upon the herbals for the treatment of their different diseases as the nursing home and hospitals are far away from them. About 32 plant species have been recorded from this district for the treatment of carbuncle disease. The method of preparation of medicine, mode of administration and dosage application have been recorded from the tribal people and local herbal practitioners or healers of the district. In most of the cases leaves of the investigated Plants were used for the treatment of carbuncle.

Key words: Carbuncle; Ethnobotany; Purulia.

INTRODUCTION

Botanicals have always served as a source of food, fodder, fibre, timber, and medicine. Plants have been used for important medicinal constituents in indigenous medical systems since ancient times. The tribal people who reside in very remote rural areas are fully dependent upon the herbals. Local herbal practitioners or healers practice the use of medicinal plants for common people in a very low expense.

In India over 53 million tribals belonging to 550 tribal communities under 227 linguistic groups have been reported. They very often use the phyto resources of their surroundings to prevent and cure various ailments of their own and domesticated animals. According to WHO the traditional medicine are proven to be efficacious and safe (1) and 80% of the world population is dependent on the traditional medicine and a major part of traditional therapies involves the use of plant extracts or their active constituents. In developing countries a huge number of people lives in extreme poverty and some are suffering and dying for want of safe water and medicine, they have no alternative for primary health care (2). India has 45,000 plant species, of which 15,000 species are of flowering plants and 7,000 species identified as medicinal plants. Purulia is the good source of medicinal plants in West Bengal. About 85% of the rural population of Purulia depends on wild plants for the treatment of carbuncle. Folklore and traditional knowledge at present in the process of degeneration due to disruption of forest covers, uprooting of tribal population due to industrialization. So there is urgent need to document the available information in detail for future application and scientific investigation.

The knowledge of traditional medical practitioners as well as of the wise men and women regarding the art of healing especially the refractory diseases has been proved to be immensely valuable for welfare of mankind. Since the healers most often belong to their own community, people seek their help for the treatment instead of consulting with allopathic doctors.

Documentation of this knowledge on war-footing has been one of the thrust areas of the present day scientific research followed up by the validation and development of novel drugs. In view of this, folk herbal remedies used against carbuncle in Purulia, has been dealt with in the present work. Carbuncle is a group of boils, which is caused by methicilin- resistant staphylococcus aureus (3). It is a red swollen and painful cluster of boils that are connected to each other under the skin. Most of the carbuncles are caused by *Staphylococcus aureus* which inhibits the skin surface, throat and nasal passages. If it is untreated, it may cause serious complications like sepsis and infections in other parts of the body. In this investigation, an ethno botanical attempt was taken to explore the plants used by various ethnic groups residing in tribal dominated rural belts of Purulia for the treatment of carbuncle. Although the people of Purulia traditionally used so many herbal plants for preparing drugs and medicines to treat carbuncle yet no such documentation has been done earlier. Several ethno botanical investigations have been conducted earlier in the district to explore its vast ethno medicinal Plants (4-16). The present Investigation is an attempt to investigate the ethno medicinal plants resources, the

***Corresponding Author:**
Dr. Dulal Chandra Das,
Associate Professor & Head,
Department of Botany,
Raja N.L. Khan Women's College,
Midnapore, West Bengal, India.

plant parts used in Purulia district for the treatment of carbuncles.

MATERIAL AND METHODS

In order to explore the use of medicinal plants by the tribes of Purulia district, ethno botanical surveys were conducted in villages during January 2011 to April 2014. A standard ethno botanical method was used (4) to investigate the information. A semi structured questionnaire was administered to the traditional medical practitioners and the other knowledgeable people residing in the area. In the rural camps, following formal meetings, field visits were carried out to explore the plants in situ. Photographic apparatus were used to document informants, to collect information regarding the local names, plant parts used, the method of preparation and the mode of administration. The informants were selected on the basis of their knowledge and tradition of ethnomedicinal practice. Formulations were found to be mostly monoherbal prepared in the forms of paste, juice, decoction or infusion. The paste was prepared by thrashing the herbs on a stone platform with little or no water, while the juice and the decoction were made with lots of water. An infusion was produced from steeping plants with healing ability. The medicinal Plants specimens were collected, identified with the help of authentic specimens, books, journals, floras and revisions (17-26) and documented in the herbarium of Department of Botany, Raja N.L. Khan Women's College. For up to date author citation Brummitt and Powell (27) was followed.

RESULTS

About 32 medicinal plants (Table 1), their vernacular names, method of preparation and dosage administration for the treatment of the carbuncle have been investigated and presented in the Table 1 below.

Table 1: List of ethno botanicals used against carbuncle.

S. No.	Scientific name	Family	Vernacular name	Method of preparation	Dosage administration
1	*Shorea robusta* Gaertn.f.	Dipterocarpaceae	Sal	3 to 4 fresh leaves pounding in little water Mildly boiled to get a paste	Applied on Carbuncle 2 to 3 times a day for 7 days.
2	*Annona squamosa* L.	Annonaceae	Atapata	Leaves Paste mixed with very low amount of Salt.	Applied on Carbuncle 2 to 3 times a day for 3-5 days.
3	*Piper betle* L.	Piperaceae	Pan	Fresh Leaves with Ghee on the upper Surface.	Leaves put on Carbuncle for 2 to 3 days.
4	*Bombax ceiba* L.	Bombacaceae	Shimul	Fresh Stem bark is ground with water to get a paste.	Paste applied on that portion twice a day for 5-7 days.
5	*Pterocarpus santalinus* L.f.	Fabaceae	Rakta Chandan,	Fresh bark of pterocarpus ground with *Ambroma augusta* to get a paste.	Applied on that portion for 2 to 3 times of day.
6	*Ricinus communis* L.	Euphorbiaceae	Reri	10 to 12 Seeds ground with luke warm water to form paste.	Paste applied on carbuncle 2 to 3 times a day to 5-7days.
7	*Cyperus rotundus* L.	Cyperaceae	Mutha	Fresh rhizome Juice of *Cyperus rotundus*	Affected site massaged for few days
8	*Centella asiatica* (L) Urban	Apiaceae	Thankuni	10 to 12 fresh leaves boiled with water for 10 minutes.	Wash that portion 2 to 3 times a day, continued till recovery.
9	*Calotropis procera* (Ait.f.) Dryand	Asclepiadaceae	Akanda	4 to 5 fresh leaves boiled in hot water for 15 minutes.	Wash the affected part 2-3 times for 7 days.
10	*Syzygium cumini* (L)Skeels	Myrtaceae	Jam	4 to 5 times boiled in mustard oil.	Oil message 2 to 4 times in a day till recovery.
11	*Ficus religiosa* L.	Moraceae	Asastha	Fresh young leaves kept carbuncle.	2 to 3 days.
12	*Eupatorium aypana* Vent	Asteraceae	Ayapana	4 to 5 fresh leaves boiled with water.	Wash the affected part with that water for 3 to 4 times a day till recovery.
13	*Sida cordifolia* L.	Malvaceae	Latjakha	4 to 5 fresh leaves of *Sida cordifolia* pounded with the seed of *Ricinus* and to form paste.	Paste applied to 2 to 3 times a day for 7 days.
14	*Hibiscus rosa-sinensis* L.	Malvaceae	Jaba	Fresh leaves (3-4) of *Hibiscus* ground with water to from paste.	One time in night.
15	*Achyranthus aspera L.*	Amaranthaceae	Apang	Fresh root crushed with water to form paste.	Applied on that part one time of a day for 7 days.
16	*Curculigo orchioides* Gaertn.	Amaryllidaceae	Talmuli	Fresh root paste.	One time in a day on affected part.
17	*Urginea indica* (Roxb.) Kunth.	Liliaceae	Banpiyaj	Bulbs paste.	One time.
18	*Averrhoa carambola* L.	Oxalidaceae	Kamranga	Fresh root crushed and mixed with water to form paste.	One time of a day.
19	*Cuscuta reflexa* Roxb.	Convolvulaceae	Sarnalata	*Cuscuta* (50 gm) and *Ricinus* Seed (10gm) crashed together and mixed with water to form paste.	One time a day.
20	*Azadirachta indica* A, Juss.	Meliaceae	Nim	Fresh leaves (50gm) ground with water to form paste.	2 to 3 times a day for 7 days on carbuncle.
21	*Ficus hispida* L.	Moraceae	Dumur	Milky Secretion from Stem.	Milk applied on carbuncle 2 time a day for 7 days.
22	*Datura metel* L.	Solanaceae	Datura	Seeds of *Datura* crushed and powdered.	Powder applied on the mouth of carbuncle for quick relief.
23	*Aloe vera*(L)Burm.f.	Liliaceae	Ghritkumari	Fresh leaf Juice of Aloe vera.	Applied on carbuncle till recovery.
24	*Artocarpus heterophyllus* Lam.	Moraceae	Kathal	Inflorescence axis of Artocarpus ground with water to form paste.	Applied 2 to 3 times a day for 7 days.

25	*Allium sativum* L	Amaryllidaceae	Rasun	Rasun mix with calcium hydroxide to form paste.	Applied on carbuncle except mouth portion and continue for seven days.
26	*Madhuca longifolia* (Konig) J.F.Macbr.	Sapotaceae	Mahul	Flower of the plant pounded with water to form paste.	Applied on carbuncle till recovery.
27	*Tamarindus indicus* L.	Fabaceae	Tetul	Powder from the seeds of *Tamarindus* mixed with water and form paste	Applied on carbuncle two times a day for seven days.
28	*Cotula anthemoides* L.	Asteraceae	Pesainandi	Leaves paste	Applied on carbuncle till recovery.
29	*Hemidesmus indicus* R.Br.	Apocynaceae	Kshirini	Roots, Stem and Leaves paste	Paste applied on carbuncle for seven days.
30	*Acacia catechu* Willd.	Fabaceae	Khair	Bark	Bark extract used for seven days.
31	*Trichosanthes dioica* Roxb.	Cucurbitaceae	Parwal	Fruits	Fruit extract applied on carbuncle for seven days.
32	*Terminalia chebula* Retz.	Combretaceae	Haritaki	Seeds	Seeds paste used on carbuncle for five days.

DISCUSSION

Purulia district is one of the good source of herbal medicinal plants and the tribal people of this district were used the herbals since past up till now. The methods were used to cure the disease have been found to be different from one ethnic group to other. This is because of their different socio-economic structure, ancient traditional knowledge and beliefs. Their livelihood is totally dependent on ecological surroundings and they use simple technology to sustain their life which seems totally conservative. Young generation ignoring the traditional practice on herbals day by day. The present study emphasized that there is a profound and growing knowledge gap between old and younger generations. People of more than 50 years old know a lot about wild plant products as compared to younger generation (28-33). The present work documented 32 species of angiosperms which were used for the herbal preparations against carbuncle (table 1). In most of the cases leaves were used for potential source of medicines for the treatment of carbuncle. All the investigated species may be put into scientific evaluation for novel drug development against carbuncle. Out of these 32 plant species *Ficus religiosa* and *Hibiscus rosa-sinensis* were most commonly used throughout the Purulia district.

CONCLUSION

Although a good number of ethnic communities with various cultural backgrounds used a number of plants for the treatment of carbuncle in Purulia the indigenous knowledge of phytotherapy is gradually vanishing due to the rapid urbanization, negligence of younger generation to inherit and practice of traditional knowledge. Some other factors responsible for the prevalence of the carbuncle in Purulia are lack of good medical facilities, shallow knowledge about the transmission and contamination of *Staphylococcus aureus* among the people, poor health status of the people, disappearance of medicinal plants and lack of conservation strategy of the medicinal plants. Further phytochemical investigation and bioactivity guided clinical treatments may reveal the presence of novel compounds with therapeutic efficacy. As the little information about the chemical components of these plants available up till now future research work hopefully will find out the detail bioactive compounds for the treatment of carbuncle.

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