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Indigenous Health Care Practices among Santals of Bankura, West Bengal, India

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ABSTRACT

An intensive survey on the health care practices among the Santals was conducted in Bankura district, West Bengal, India during 2016. The study intend to find out the implication of ethno-medicine on health and diseases. Data were collected through structured schedule from 30 participants including medicine men, Information on 70 plants, having medicinal value was obtained. Additional information on use of a few animal species was also obtained. The study, instead of its limitation, find out some of the preventive and curative measures of health care among the villagers of reference area, which include sanitation, cleanliness, food habit, disposal of dead as well as diagnosis of disease, treatments and the ethno-medicinal practices.

Key Words : Ethno-medicine, Health care, Santal

INTRODUCTION

The tribal populations of India are the indigenous groups. The concept of well-being and the notion of the disease varies between different tribal groups, yet in tribal habitat, a person is usually considered to be afflicted with some diseases if he/she is incapable of doing the routine work which is usually being expected to be carried out by that individual in the society, *i.e.* incapacitation from work is the universal index of poor health. Thus the concept of ill health becomes a functional one and not clinical (Kalla and Joshi, 2004).

The Santals look upon illness and disease as something unnatural, and make their own deductions from this proposition. They have an idea, that a human being has a natural right to health and life, and that consequently he ought to live to old age. Disease is something foreign and inimical to man. On the other hand, they theoretically profess to believe, that just as man is brought into the world and given what is necessary for support by the Creator or Supreme Being, so man is also carried away by His order. Besides in a Supreme Being the Santals also believe in a numbers of sprits without exception evil and enemies of man. They acknowledge natural causes of illness; they cannot avoid seeing effect and immediate cause; as a rule they can also see the material nature of disease. But there is always a suspicion that the natural cause is not the original one, but that evil influences are at work in the first instance (Bodding, 2016).

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Globally, about 85% of the traditional medicines used for primary healthcare are derived from plants. Traditional medicine and ethno-botanical information play an important role in scientific research, particularly when the literature and field work data have been properly evaluated.

India is a land of rich biodiversity. Existence of large number of medicinal plants may be seen as a boon to this country. The only need is to frame a scientific usage of these medicinal plants for sustainable development of rural and tribal people of the soil. Although India covers only 2.45% of the earth's surface, it contains almost 27% of all higher medicinal plants. Further, it has been reported that Indian forest has more than 3000 different types of rarest medicinal plants which cannot be seen anywhere in the globe.

The botanical Survey of India estimates the number of species of flowering plants in India at between 36, 000 to 48,000. More than 21% of total flora of India is thought to have medicinal value. More than 90 million people are depend directly on biodiversity. It is estimates that people make use of only around 11,000 plant species.

India has a rich diversity of medicinal plants. The supply base of 90% herbal raw drugs used in the manufacture of Ayurveda, Siddha, Unani and Homeopathy systems of medicine are largely from the wild (Nanjunda, 2010).

Department of Indian Systems of Medicine and Homoeopathy (ISM&H) was created in March, 1995 and re-named as Department of Ayurveda, Yoga and Neuropathy, Unani, Siddha and Homoeopathy (AYUSH) in November, 2003. It was elevated to the status of Ministry of AYUSH in the year with a view to providing focused attention to development of education and research in Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy systems. The ministry continued to lay emphasis on up gradation of AYUSH educational standards, quality control and standardization of drugs, improving the availability of medicinal plant material, research and development and awareness generation about the efficacy of the systems domestically and internationally. Sowa Rigpa is the recent addition to the existing family of AYUSH systems.

Encouragement to scientific research and education, laying down pharmacopoeial standards to ensure quality drugs, evolving good laboratory practices, following good manufacturing practices, regulating education standards, supplementing the efforts of State Governments in setting up AYUSG in allopathic hospitals and AYUSH units in Primary Health Centres (PHGs) and Community Health Centres (CHCs) and AYUSH wings in District Allopathic hospitals, upgradation of AYUSH hospitals and dispensaries, creating awareness through organization of Health *Melas* and other information, education and communication, are just some of the ways in which the department is helping in the growth and wider reach of Indian systems of medicine and Homoeopathy.

Ayurveda, Siddha, Unani and Homoeopathy drugs are covered under the purview of Drugs and Cosmetics Act, 1940. Since most of the medicines of AYUSH sector are made from medicinal plant materials, the ministry has set up a National Medicinal Plants Board to promote cultivation of medicinal plants and ensure sustained availability of quality raw material. A separate National Policy on Indian Systems of Medicine and Homoeopathy is in place since 2002 (India: A Reference Annual, 2016)

It has been a century ago that Harashberger (1896) coined the term 'ethnobotany'. Basically, ethnobotany deals with aboriginal man and his social, cultural and religious links with plants. The interest of ethnobotanists include a wide range of subjects like indigenous healing herbal medicines, plants used in religious rituals, cultural activities and musical instruments, foods of plant origin, fossils, ancient trade routes, wild relatives of cultivated plants, new and emergent uses of plants as alternative sources of energy, renewable biomass energy, etc., hithero not known to mankind are

some of the facets of Ethnobotany.

The erosion of native ethnobotanical knowledge and its use has been ever rapid than ever before in the realm of biodynamic plants comprising medicinal, narcotic and toxic specie (Schultes, 1956, 1969), Schultes explains "that the knowledge which gave birth to culture is entombed with culture." This is true that traditional knowledge is getting lost before it is tapped properly for better utility of mankind. Of late, the academic and practical importance of aboriginal knowledge of plant properties has been increasingly realized. Various investigators are conducting researches in the allied sciences and social sciences fields and have recognized the need to save and retrieve the naïve plant lore that is entombed with culture that gave it birth.

The role of ethnobotany in the search of new medicinal plants and psycho-active drugs is known through the works of Banerji (1955), Woodward (1956), Altschul (1956) and Effon (1967) particularly on contraceptives, cancer drugs (Hartwell, 1967-1971) and hallucinogens (Hoffer and Osmund, 1967; Schultes, 1969) derived from plants were documented. Ethnomedicinal research work is being published related to herbal drugs, herbal medicines, phytotherapy, folk-medicine, medicinal herbs and traditional medicine. In India, relevant information on ethnobotany can be traced to Vedic literature, CharakaSamhita and Sushruta Samhita, Vasthugunadiepica—a local treatise of MateriaMedica. Albeit, excellent information is compiled related to the phytochemistry and phytomedical, that is, Ayurvedic application and importance of these plants.

Vedic literature contains many references in hymns, invocations and charms to various plants possessing medicinal or magical properties. The evidence of systematic herbal knowledge, however, was found in the oldest medicinal book of India, that is, SushrutaSamhita (Trivedi and Sharma, 2004).

Objectives :

In the present study, an effort has been made to find out different enthno-medicinal practitioner of Santal Tribesmen. In the present study an effort has also been made to find out various types of medicinal plants and their application in healing purpose. In addition the present study seek to understand the general health condition, sanitation, cleanliness and other traditional perception related activities as prevalent among the Santal people of the area under study.

The specific objectives of the present study are

1) Investigate the herbal plant and animal uses by the local practitioner of Santal tribe in the study villages.

2) To find out the implications of use of local medicinal plants and applications on diseases.

3) To understand the acceptance of indigenous herbal medicine in respect to modern or other therapeutic practices.

4) Influence of culture in adoption of medicinal plants along with its impacts.

The study area :

Bankura is one of the districts of West Bengal where most of the area is adjacent to the forest. It is located in the western part of the state West Bengal. The district has been described as the connecting link between the plants of West Bengal on the east and Chota Nagpur plateau on the west. Bankura lies between $22^0$38' and $23^0$38' North latitude and between $86^0$36' and $87^0$46' East longitudes.

For present study Sarenga block of Bankura district has been choosen. Sarenga Development Block is under JangalMahal in the district of Bankura. In the North, there is Simlapal Block and

PaschimMidnapur district situated in thesouth and in the East Side of the block. Kansai river make a boundary in the west and in the southern side. Latitude and Longitude of the block is – 22°46½ N and 87°02½E. There is six Gram Panchayat under the block of Sarenga. In the north there is Neturpur GP and in the South is Gargaria. Eastpart of the Block is under Goalbari GP and partly Bikrampur GP, and western part is under Chiltore and Partly Sarenga Gram Panchayat.

For the purpose of the present study, nine remote villages namely- Amdani, Nimdangra, BoroSalboni, Murku, Khash Jangle, Kadma, Gobordhanpur, Khepardanga, Sarenga situated in the south-western part of Bankura district were selected. In choosing villages, presence of at least one practicing medicine man/women of tribal origin was the main criteria. In the study villages there were considerable numbers of tribal people. The tribe men of the village belong to Santal tribe.

METHODOLOGY

An ethno-medicinal survey with association of currently occurring disease pattern has been carried out in the study area (Amdani, Nimdangra, BoroSalboni, Murku, Khash Jangle, Kadma, Gobordhanpur, Khepardanga, Sarenga). During the survey information were collected on the use of local medicinal plants by the Santal people of the concerned area. The information were collected by using an integrated approach of botanical collections, group discussions and interviews with the help of structured schedule. Information regarding vernacular name, plant parts used, and process of preparation of medicine with other accompanying ingredients for treatment of particular disease were noted from the interviewee. Identical photographs (as much as possible) of the used plants has been collected. For authentic identification of plants, different books have been consulted (Jain, 1991; Mukherjee and Namhata, 1988).

All the medicine men and women has been chosen from different villages. Pre-planned systematic field survey has been carried out during September, 2016. Primarily the medicine men and or women of the study villages were identified and then they were interviewed following structured survey schedule. In addition information were also collected from local old men and women of Santal tribe, especially from the patients. Govt. doctors of Sarenga Block Primary Health Center were also interviewed. Help of local forest dwellers was took to identify the plant species. Care was took in selecting participant for the identification campaign in the local forest. Forest dwellers who have the knowledge of the utilization of plants as herbal medicine were preferred for the identification purpose.

Problems were faced due to less accessibility of the study villages. Toto, auto, van, and car was rented to reach the medicine men and women of different remote area. Firstly it was hard to proceed the communication with most of the interviewees as during the interview time they were speaking in their own dialect. The local accompanying person helped to solve the problem he served as an interpreter in the required situations.

Secondly most of the medicine men and women were unwilling to provide the information about their knowledge of the ethno-medicinal practices as they were afraid the sharing of their knowledge could hamper their practice. Sometime they were claiming that the effectiveness of certain medicines will be lost if they share information about those as they came to know about those medicines in their dream by the blessing of *Devi Monosa*.

RESULTS AND DISCUSSION

For the present study all total twenty medicine men and women has been interviewed from

nine different villages of Sarenga block. Highest numbers of medicine men has been found from Murku village. Most of the medicine men's primary occupation is farming while only one medicine women found in the study area is primarily occupied with household duties.

Table 1: List of medicine men and women interviewed

Sr. No.	Medicine men/ women	C/O	Sex	Age	Primary occupation	Village (No. of Medicine men)
1.	Saheb Ram Murmu	Ngendra Nath Murmu	M	53	Farmer	Amdani (3)
2.	Suren Mandi	Sushil Mandi	M	50	Farmer	
3.	Durgacharan Soren	Bhutaram Soren	M	45	Farmer	
4.	Laxmimoni Hansda	Nanda Tudu	F	60	Household duties	Nimdanga (3)
5.	Sukhdev Hansda	Guru pada Hansda	M	38	Farmer	
6.	Baburam Mandi	Kanai Mandi	M	40	Farmer	
7.	Bipin Mandi	Guru Charan Mandi	M	40	Farmer	Boro Salboni (1)
8.	Lalmohon Soren	Joggeshwar Soren	M	45	Farmer	Murku (5)
9.	Tarapada Soren	Manik Soern	M	55	Farmer	
10.	Dilip Hembrom	Asim Hembrom	M	35	Farmer	
11.	Binod Hembrom	Sreepati Hembrom	M	65	Medicine man	
12.	Babulal Mandi	Dhiren Mandi	M	55	Farmer	
13.	Badal Kisku	Sukhraj Kisku	M	58	Farmer	Khash Jangle (1)
14.	Gurudas Mandi	Nimai Mandi	M	62	Medicine man	Kodma (1)
15.	Sishu Ram Hansda	Srikanta Hansda	M	60	Farmer	Gobordhanpur (1)
16.	Dhononjoy Soren	Mangol Soren	M	45	Farmer	Khepardanga (2)
17.	Binod Mandi	Sukhdev Mandi	M	57	Farmer	
18.	Anil Mandi	Sudhir Mandi	M	48	Farmer	Sarenga (3)
19.	Sham Soren	Kesob Soren	M	60	Medicine men	
20.	Sahib Soren	Aakhil Soren	M	56	Farmer	

Disease prevalent among the Santhals :

As per the information provided by the Govt. doctors in the study area the diseases are found to be vary according to seasons in the following pattern.

Season	Diseases
Summer	Fever, Malaria, Diarrhea, Dysentery, Blood Dysentery etc.
Winter	Skin diseases, Scabies, Eczema, Diarrhea, Dysentery, etc.
Monsoon	Cold, Cough, Fever, Toothache, unspecified eye diseases, Arthritis.

Preventive Health Care :

Sanitations :

The concept of health and hygiene among the Santals of the study area is not of high order. There are no specific place within the villages to compile refused materials. There are not proper ventilation in their houses. The drainage system of the village is extremely poor. Though there are latrines (one for each family or one for two or three families) in the study area but open defection is not rare. The emission they use either ash or leaf. But presently the students trying to use soap or detergent as they taught the necessity of hand wash after defection.

Cleanliness :

The use of water for washing the body is quite infrequent among the Santals of the study villages. The males of the older generation usually do not take bath and clean their garments. But the educated boys and girls are changing are changing their habits. Now, most of them are in favour of taking bath. Food habits.

The elder people even don't take the dental care occasionally they use some herbal branch or leaf to clean teeth. The younger generation is somehow accustomed to the use of brush and tooth paste. They seldom use soaps to clean their garments. In general the young girls, women and boys are using soap and detergent to wash their garments. Generally the women do not use soap or shampoo to clean their hair. But the younger generation are using soap and shampoo to wash their hair and body.

Food habit :

Normally they take rice, boiled dry fish, leafy vegetables curry. Rarely do they take meat. They take meal thrice in a day. Occasionally they drink tea with fry rice (*muri*). Drinking country liquor (*Handia*) is a popular practice in them.

Disposal of dead :

The death of an individual is mourned with much grief and sorrow and the ritual observed are different in tribal people than the other villagers. They cremate the departed persons in the outskirts of the villages. Especially beside ponds, lakes, under big trees or within jungle. The cremation ground of tribal is different from the other villagers cremation ground.

Family planning :

Previously within the Santal people of the study area there were no method of birth control nor do they wished to terminate any pregnancy as a means to control their family size, because they were in belief that economic prosperity depends upon the size of the family. Presently due to birth control campaign of local Govt. Hospital they are in favour of birth control and availing different birth control measures from hospital. They even purchase oral contraceptive from the market and also from the hospital.

Termination of Pregnancy :

The need for termination of pregnancy as always, is felt in case of conception by an unmarried woman. In such case the unmarried pregnant woman can destroy the fetus, if she desires so. In rare cases the babies are killed after born and buried in the jungle. There is no indigenous medicine for the termination of an unwanted pregnancy.

Curative measures :

Diagnosis of disease :

Usually a disease is diagnosed from the symptoms like, aversion towards food, body pain, body temperature, abdominal pain, colour of the stool and urine, headache, fracture or dislocation of any bones etc. after diagnosis, medicines either of vegetative or of animal origin are prescribed. The quantity of medicine, timing and frequency vary according to the severity of the disease. When they fail to diagnose any disease they consult local medicine men. If in any case local medicine men fail to diagnose then they prefer to visit Govt. Health Center (Sarenga Block Primary Health

Center). Though in critical cases they visit Khristiya Seva Niketon (*Mission*).

Treatment :

In day to day occurring diseases they opt for domestic treatment then they opt for local medicine men (whom most of the treatment is ethno-botanical). In severe cases they visit Sarenga Block Primary Health Center (*Health*) or Khristiya Seva Niketon (*Mission*).

Ethno-medicinal :

The different plants which have been documented during the present investigation along with their motive of use in different health treatment by the local tribe men and health healers are given in the table below (Table 2). The species are arranged in alphabetical order of their Local name with Plant Type, Common Name, Scientific Name and Family followed by Parts Used, Aliment treated and Motive of use. Table -3 containing the list of some plant which are not been identified by their Scientific Name.

Table 2: List of investigated medcinal plants

Local Name and Plant Type	Common Name	Scientific Name	Family	Parts used	Aliment	Motive
1. Aada (Herb)	Ginger	*Zingiber officinale*	Zingiberaceae	Rhizome	Cold and Cough.	Slices are to be taken with salt as orally. Sometimes took orally after boiling with tea and water.
				Rhizome	Sore/choked throat, improvement of voice.	Rubbed on stone adding water taking orally with salt.
2. Aakh(Herb)	Sugar cane	*Saccharumo fficinarum*	Poaceae	Leaf.	Diabetes	Juice is to be taken as orally.
3. Aam (Tree)	Mango	*Mangifera indica*	Anacardiaceae	Pulp.	Headache	The pulp of the burned Mango is smashed and made into paste and mixed with water to prepare juice and finally it is to be taken orally.
4. Aamloki (Tree)	Amla	*Pedilanthus emblica*	Euphorbiaceae	Fruit	Hair problems.	Slice of fruit are placed within plain water (4-5 fruits in one cup of water) then the juice used to wet the hair from root to tip (smeared).
				Fruit and Seed	Syphilis.	After crushing orally taking with honey.
5. Amra (Tree)	Hog plum	*Spondias dulcis*	Anacardiaceae	Pulp	Skin disorders.	The pulps are boiled in water and the juice is smeared on the affected area.
6. Arhar (Herb)	Pigeon pea	*Cajanus cajan*	Fabaceae	Root	Jaundice.	The roots are dried and cut into pieces then tied up around the forearm with the help of thread.
7. Aswatha (Tree)	Peepal/Bo-tree/ Bodhi tree	*Ficus religiosa*	Moraceae	Leaf and bark	Diarrhea	Smashed to make into paste then to be taken as orally.
8. Babla (Tree)	Acacia/ Thorn-tree	*Acacia nilotica*	Leguminosae	Leaf	Skin infection.	The leaves are smashed and the juice is taken as orally.
				Gum	Syphilis.	Making into paste adding water then taking with sugar.

Table 2 contd…

Table 2 contd…

9. Basak (Herb)	Vasak	*Adhatoda vasica*	*Acanthaceae*	Leaf	Cold and Cough.	Leaves are smashed and juice is extracted from it. Then it is to be taken as orally.
10. Bel (Tree)	Wood apple	*Aegle marmelos*	Rutaceae	Fruit	Dysentery and digestion problems.	The burned fruits are to be made into paste and to be taken as orally.
11. BisallaKarali (Climber)	Flame lily/ Climbing lily	*Gloriosa superba*	Colchicaceae	Leaf	Cuts, Sores, Wounds.	After smashing juice is smeared on the affected portion.
12. Bot (Tree)	Teak	*Tectona grandis*	Lamiaceae	Tender leaf	Dysentery and Diarrhea	Taking orally. Chewing with salt.
13. Bon Tamak (Herb)	Cultivated tobacco	*Nicotiana tabacum*	Solanaceae	Leaf	Skin infection.	Leaves are heated with water. Then taking bath with the solution.
14. Chirchiti/ Chirchita (Herb)	Prickly chaff flower	*Achyranthes aspera*	Amaranthaceae	Root	Diarrhea.	Roots are smashed and made into paste and to be taken orally.
15. Dalim (Shrub)	Pomegranate	*Punica granatum*	Lythraceae	Leaf	Dysentery	Leaves are smashing and taking with salt.
16. Dhone (Herb)	Coriander	*Coriandrum sativum*	Apiaceae	Leaf	Dysentery	Leaves are smashing and taking with salt.
17. Dhutura (Herb)	Metel/ devil's trumpet	*Datura metel*	Solanaceae	Leaf	Gout	Leaves are heated and then placed on the affected portion.
18. Dudhi (*Shrubs* or undershrubs)	Indian Sarsaparilla	*Hemidesmus indicus*	Periplocaceae	Root	Impotency,	Roots and leaves are smashed and the paste is to be taken as orally.
				Leaf	Venereal diseases	Leaves are smashed and the paste is to be taken as orally.
19. Durbaghass (Climber)	*Dhoob*/ Bermuda grass	*Cynodon dactylon*	Gramineae (Poaceae)	Leaf and stem.	Cuts, Sores, Wounds.	The leaves are smashed and made into paste and smeared on the affected portion.
20. Gad (Herb)	Dregs	*Acacia catechu*	Leguminosae	Leaf	Cuts, Sores, Wounds.	The leaves are smashed and made into paste then smeared on the affected portion.
21. Ganda (Herb)	Mary gold	*Tagetes patula*	Asteraceae	Leaf	Haemorrhaging (External)	The leaves are smashed and the juice is to be smeared at the cut portion of skin
22. Ghetu (Shrub)	Hill glory bower	*Clerodendrum infortunatum*	Lamiaceae	leaves and roots	Respiratory diseases, Fever, Periodic fever, Cough, Bronchial asthma	Leaves and roots are to be smashed and to be taken as orally.
23. Ghritakumari (Herb)	Aloe Vera	*Aloe barbadensis*	Liliaceae	Leaf	Headache	Gel of leaves have been extracting and applying on the head.
					Indigestion, Diabetes	Gel is to be taken orally.
					Skin burn	Gel are extracting and applying in the affected portion.
24. Helencha (Herb)	Water cress	*Enhydra fluctuans*	Asteraceae	Leaf and stem	Intestinal worms.	Juice is extracted and is to be orally taken. Sometimes it's also taking orally after boiling.

Table 2 contd..

Table 2 contd…

25. Halud (Herb)	Turmeric	*Curcuma longa*	Zingiberaceae	Root	Skin infection and Intestinal worm.	The roots are smashed and made into paste and to be smeared on the affected skin. Dusts are made into pills with water and salt and to be taken as orally with water.
26. Jayanti (Shrub)	Sesbania Pea	*Sesbania cannabina*	Leguminosae	Leaf	Cuts, Sores, Wounds.	The leaves are smashed and made into paste. Then the paste is boiled and finally it smeared at affected place.
27. Jostimadhu (Herb)	Liquorice	*Glycyrrhiza glabra*	Fabaceae	Latex.	Cold and Cough.	It is smashed and made into paste and then took as orally.
28. Joba (Shrub)	China rose	*Hibiscus rosasinensis*	Malvaceae	Flower	Sterility and Syphilis.	It is smashed and made into juice with water then adding sugar and then took as orally
29. Kalmegh (Herb)	Green chirayta	*Andrographis paniculata*	Acanthaceae	Leaf	Intestinal worm and Hair problems.	The juice is extracted from it and then it is to be taken in empty stomach in morning. In hair problems smashed leave's paste is took as ointment at the affected portion and also at the root of the hair.
30. Khajur (Tree)	Date Palm	*Phoenix dactylifera*	Arecaceae	Fruit	Diarrhea.	The fruits are smashed and made into paste. The prepared paste is then boiled and finally it to be taken as orally.
31. Kul (Tree)	Jujube/ Red date	*Ziziphus jujuba*	Rhamnaceae	Fruit	Chronic constipation	The dried fruits are smashed with some black peppers and made into paste and took orally with salt.
32. Kulekhara (Herb)	Marsh barbell/ gokulakanta	*Hygrophila spinosa*	Acanthaceae	Leaf and stem	Anaemia.	Juice is extracted after smashing then is to be taken as orally.
33. Lojjaboti (Herb)	Sensitive plant/Sleepy plant/Shy plant	*Mimosa pudica*	Leguminosae	Leaf and stem	Mouth infection.	Leaves and stems are boiled with water then the water was using to rinse the mouth.
34. MistiAkanda (Shrub)	Sweet sun plant	*Catotropis procera*	Asclepiadaceae	Root	Sterility.	The roots are smashed and the prepared paste is mixed with milk of cows whose calf bearing features as her mother and it is to be taken orally on every Sunday.
35. Mitha pat (Herb)	Jew's nallow	*Corchorus olitorius*	Tiliaceae	Leaf	Polyuria, Stomach problems and indigestion.	The juice of leaves is extracted and is to be taken as orally.
36. Nayantara (Herb)	Rosy periwinkle	*Catharanthus roseus*	Apocynaceae	Leaf and flower	Diabetes, Internal infections.	The leaves and flowers are smashed and the juice is to be taken as orally.
37. Nim (Tree)	Neem tree	*Azadirachta indica*	Moliaceae	Leaf	Skin diseases and Intestinal worms.	The leaves are boiled in water to take a bath to get rid of skin diseases. To prevent intestinal worms the juice of leaves are extracted and it is to be taken as orally.
38. PatharKuchi (Herb)	Air plant	*Bryophyllum pinnatum*	Crassulaceae	Leaf.	Piles.	The leaves are smashed, made into paste then it is to be taken as orally.

Table 2 contd..

Table 2 contd..

39. Peyara (Tree)	Guava	*Psidium* sp.	Myrtaceae	Tender leaf	Mouth infection.	The leaves are boiled in water then the water was using to rinse the mouth.
40. Rosun (*Herb)*	Garlic	*Allium sativum*	Amaryllidaceae	Root	Twist of hand and leg.	Roots are smashed and the juice is to be taken as orally.
41. Sarpogondha (*Herb)*	Rauwolfia	*Rauvolfia serpentine*	Apocynaceae	Root and leaf	High blood pressure, Venereal disease (like- Gonorrhea, Scabies, Yeast Infections.	Roots and leaves are smashed and the juice is to be taken as orally.
42. Shal (Tree)	Timber tree	*Shorea robusta*	Dipterocarpaceae	Latex.	Cholera.	The latex of the twig of timber tree is to be taken as orally.
43. Shiuli (Shrub)	Night-flowering Jasmine	*Nyctanthes arbor-tristis*	Oleaceae	Leaf	Intestinal worm.	The leaves are smashed and the juice is to be taken as orally
44. Simul (Tree)	Silk cotton tree	*Bombax ceiba*	Bombacaceae	Bark of root	Pimples.	These are smashed, made into paste and it is smeared at the affected portion.
45. Telakucha (Climber)	Ivy gourd	*Coccinia cordifolia*	Cucurbitaceae	Leaf and stem.	High blood pressure.	The leaves and stems are smashed and the juice is to be taken as orally.
46. Tetul (Tree)	Tamarind	*Tamarindus indica*	Fabaceae	Ripened fruit	Fever	Applied on foreheads.
				Seed	Insect sting	Rubbed on stone with water, sap is using.
47. Thankuni (Creeper)	Asiatic pennywort/Indian pennywort	*Centella asiatica*	Umbelliferae	Leaf	Intestinal worm.	Leaves are smashed and the juice is to be taken as orally.
48. Tita pat **(**Shrub***)***	White jute	*Corchorus capsularis*	Tiliaceae	Leaf	Oliguria or Hypouresis, Indigestion, Stomach pain.	Juice is extracted and is to be taken as orally. Also boiling with salt and taking as orally.
49. Tulsi **(**Shrub**)**	Holi basil	*Ocimum sanctum*	Lamiaceae	Leaf	Skin problems. Like- acne, Pimples and Scars). Insect's bites, Fever, Cough and Bronchitis	Paste and Juice of the leaves is smeared on the affected skin portion and juice is to be taken as orally in other cases.
50. VuiSusni (creeper)	Water clover	*Marsilea quadrifolia*	Marsileaceae	Root	Inflammation or swelling	Roots are smashing and making into paste and applying for plastering the affected portion.

Additional information on 20 plant having medicinal value was obtained. Those are not been identified by the Scientific Name. As identical photograph collection was not possible due to less accessibility and non-availability.

In only few cases it have been found that animal products are using for treating purpose (Table 3). In case of septic multiple animal products are using at a time say for *Gaiya Ghee*(Cow product), *Hing* (dried latex of several species of Ferula, a perennial herb) and ash of duck's feather are boiling together and applying on the affected portion for three days.

Table 3: List of investigated fauna

Local Name	Common Name	Scientific Name	Parts used	Aliment	Motive
Projapati	Butterfly	*Aglais urticae*	Wings	chest pain	Grinding after drying making into Swallow powder and taking for 2 times for 5 days.
Haans	Duck	*Anas indica*	Fat	Pneumonia, Chest pain	Wormed and massaged on the chest for 2 times for 5 consecutive days.
Kecho	Earthworm	*Lumbricus terrestris*	Whole	Impotence	2 spoon at morning for 14 consecutive days.
Pipda	Black ants	*Lasius niger*	Whole	To improve intellectual and swimming capability.	Ants are taking with foods while naturally remaining in dry food.
Murgi	Chicken	*Gallus domesticus*	Egg white	Dysentery	Drink egg white once a day for 4 days
Gai	Cow	*Bos indicus*	Curd	Hair fall, dandruff	Applying on skin of head.

Efficacy of Ethno-medicinal practices :

As per the local people for most of the cases the effect ethno-botanical and ethno-zoological practices are satisfactory. In some special cases like termination of pregnancy, complication in pregnancy, snake bite, ethno-botanical medicines are not effective. In some rare cases, it has been reported that ethno-botanical and ethno-zoological practices showed adverse effect.

Other treatment :

Accept the local medicinal healer people of the study villages frequently visit the Ayurvedic Treatment Center (located in Kristopur Jamboni P. more which is 10 km distant from Sarenga bus stop, Sarenga-1). Sarenga Block Primary Health Center (1 km distant from Sarenga bus stop, Sarenga-1), KhristiyaSevaNiketan (1 km distant from Sarenga bus stop, Sarenga-1).

Perception regarding causes of disease :

Most of the tribal people belief the diseases are causing due to curse of GoddesMonsa. In other cases they think that unhygienic living condition, excessive work stress (in agricultural land under sun), and inadequate and improper nutritional uptake causing diseases.

Observations :

The use of herbal medicines is wide spread in this region with higher percentage of the tribal as well as non-tribal population relying on it. This is because of lack of modern medical facilities available in their region and the high costs of modern medical system for treatment are unaffordable by tribal. The information documented in this work is totally from primary sources being based on the uses of the locally available plants and animals by the people as their household remedies.

The present study shows that traditional system of medicine is still being practiced among the Santal people of the study area and medicinal plants play a vital role in the primary healthcare among the rural tribal folk of the study area. As the in the study area Santal tribe men of live in or near the forest area and they have close association with the plants.

Scientific validation of ethno-medicinal practices for therapeutic intervention can be a major source of affordable primary health care system especially in the rural areas. The outcome of the present study may speak about the need to identify, conserve and protect the medicinal plants and animals and the necessity of educating people to use the flora and fauna safely and rationally.

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