

# **Role of Ethno Medicine in Sustainable Development Process- An Ethnographic Study in the Villages of Bankura District, West Bengal**

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**Abstract :** *The paper is on ethno medical practices among three Santhal villages from Bankura district,, namely, Ekkadwar, Jambedia at Mukutmonipur and Ramnathpur at Sushunia. The population size is about 225, 250 and 95 respectively. Present study is focused upon the knowledge of Santhals about medicinal plants locally available, which are used by the Santals to cure some diseases they suffer from. Although the public sectors provide modern allopathic treatment the village people still depend on ayurvedic treatments, on the plant products locally available.*

*Availability of ingredients as well as medical practitioners are the two factors that enhance their acceptance of ayurvedic treatment. Trust on their own cultural tradition is responsible for following such practices for generations. Sustainable development is studied for the medicinal plants and knowledge of their application in ailments.*

**Key words:** Santhal, Ethno-medicine, Health-care system, Ayurvedic treatment, Medicinal plants.

**Preamble :** Ethno-medicine has been playing very important role in human health care since time immemorial. This practice of health care is based on beliefs and experiences of the ethnic groups, which is a part of their tradition and culture (Chowdhury and Karmakar, 2015). There has been an increased demand of herbal medicine in the international market because herbal medicines are cheap, more effective, easily available and supposed to have no side effects. Ethno-medicine means the medical practices for the treatment of ethnic or aborigine people for their health care needs. Indigenous traditional knowledge is an integral part of the culture and history of a local community (Sinhababu and Banerjee, 2013). It has evolved through years of regular experimentation in the day to day life and available resources in the vicinity. The present paper documented 32 ethno-medicinal plants collected from 25 families of Bankura district, West Bengal, India. These were used by the local health healers for the treatment of different diseases.

Herbal medicine is widely practiced from ancient times throughout the world. These medicines are supposed to be comparatively safe and environment friendly than synthetic ones. On one hand drug discovery programmes based on information through traditional knowledge is emphasized and on other hand rapid urbanization, modernization and industrialization are posing threats to the existence of native population and their traditional knowledge. In most parts of the country, forests are being degraded at an alarming rate and monoculture plantation is resulting into the loss of plant diversity, hence there is an urgent need for documentation of traditional knowledge and conservation of plants (Basak, Banerjee and Manna, 2016). Realizing these facts, the author took up the present task.

Traditional medicine has been defined as the sum of the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different culture, whether explicable or not, used in the maintenance of health as well in the prevention, diagnosis, improvement or treatment of physical and mental illness (Tripathi, Ray, Mondal and Verma, 2013). In many developing countries, a large part of the population, especially in rural areas depend mainly on traditional medicines for their primary health care. The indigenous knowledge of medicinal plants has been well documented in ancient Hindu literature. Traditional knowledge on medicine since the time of great sage Charak has led to the discovery of many important drugs of modern age. Today about 65% of the Indian population depend on the traditional medicine. Plants have traditionally served as man's most important weapon against pathogen. Medicinal plants are widely used by all section of the community, whether directly as folk medicines or the medicaments of the different indigenous system as well as in modern medicines (Bandyopadhyay, 2017).

**Background of the study:** Bankura is one of the districts of West Bengal is located in the western part of the state West Bengal. The district is described as the connecting link between the plains of West Bengal on the east and Chota Nagpur plateau on the west. Most of the area is covered with forest

Bankura is one of the seven districts of Burdwan Division in the Indian state of West Bengal. It lies between 22°46' NL and 23°38' NL and between 86°36' E L and 87°46' EL. The district has an area of 6881.24 sq km and total forest area of 1404 sq km. The Biharinath and Susunia are two remarkable hills of this district.

Susunia hill (NL 23.39693° and EL 86.98527°) is situated in the north-west of Bankura district, on the Chhotanagpur gneissic plateau of West Bengal and rises to 439.5 m above sea level.

It is a very small hill and runs for a length of about 3 km. Like other forest areas in the district, forest of the Susunia hill is also tropical dry deciduous type dominated by Sal tree (*Shorea robusta Gaertn. f.*). The hill is rich in its plant resources including medicinal plants. The district Bankura is inhabited by many tribal communities such as Santal, Oraon, Kora, Bhumij, Mech, Mahali, Bedia and Munda. Santals represent the largest indigenous tribal community in the district and the villages surrounding the Susunia hill are dominated by this tribe. The tribal villages selected for this study are located within 10 km radius around the hill. The present research work is based on ethno medical practices among three Santhal villages namely Ramnathpur at Sushunia and Ekkadwar and Jambedia at Mukutmonipur. The population size is about 225, 250 and 95 respectively.

**Literature Review:** Ethno-medicine is one of the most popular topics in Social-Cultural Anthropology. Bankura is one of the tribal-rich districts of West Bengal. The Santhal tribal community has a good knowledge about the medicinal uses of the plants for various purposes. A number of studies are conducted on Ethno-medicine and its significance in Bankura district. I selected several significant works of some eminent scholars, who had written on ethno medicinal plants and its significance on human life. Sinhababu and Banerjee's paper (2013) mainly pointed out the characteristics of medicinal plants from the perspective of Botany. This paper documented 43 ethno-medicinal plants and their significance among the local people of Bankura district. The paper provides information on medicinal plants along with botanical name, family, local name and medicinal uses. Another significant and interesting paper written by C. H. Rahaman and Suman Karmakar (2015) deals with the observations on ethno medicinal uses of wild plants by the Santhal people living in the villages around the Susunia hill. Data is collected by interviewing Santhal medicine men and other

important persons with the help of questionnaires. This paper mainly depended on Quantitative approach. Detailed survey of medicinal plants of Bankura district was made by S. Basak, A. Banerjee and C. K. Manna (2016) during the period of 2003-2006. Their research is based on questionnaires. Survey from tribal medicine men and women showed that the medicinal plants are mainly used for anti fertility purposes.

S. Tripathi, S. Ray, A. K. Mondal and N. K. Verma's paper (2013) highlights the rare medicinal plants of South West Bengal, along with their various uses. In their study, they identified 45 species which are recommended highly for health-care practices and among them, 10 species are becoming rare and are on the verge of extinction because of extensive use and various anthropogenic activities. According to them, these medicinal plants required proper and full-fledged conservation. D. Bandhyopadhyay's paper (2017) mainly focused on herbal folk remedies as well as Ethno-medicine of different tribal groups of Bankura district. In spite of tremendous progress in development of modern medicine, medicinal plant still is one of the important sources of drugs throughout the World. Each of the tribal population in this district has their own pattern of preparation of herbal medicines, which is continuing from ancient time without mixing of any chemical item.

**Objectives of the study:** The objectivity of the present work is on importance of oral knowledge regarding local medicinal plants of Santhal Community to cure some major diseases they suffer from. Although the development of modern allopathic treatment is provided by the public sector, these village people are still dependent on ayurvedic practices. In the present research, medicinal knowledge along with detailed procedure of making as well as application of medicinal plants by the Santal of the three villages are pointed out.

**Methodology:** The methodology adopted for the study was based on interviews of traditional healers (locally called *Kabiraj*) and local villagers, both men and women having knowledge of medicinal plants of their area. The documentation was done based on interview, informal discussion and observation. The information thus collected and documented with local name of the plant, parts used for different kinds of ailments, natural habitat and status in the area. The survey was carried out during the year 2015-2016 in the tribal inhabited area of Bankura. The ethno-botanical data were obtained from tribal people, the Vaidyas, Ojhas, local herbal drug sellers and the information collected from the available literature. Field trips were made to the three villages from January to December between the years 2015-2016. Two or three attempts were made in each village for the interview and discussion, to gather maximum information of

the plants used in the local medicine. Each hamlet was visited 2-3 times and both men and women of age varying between 20 to 80 yrs and two traditional healers from each village were interviewed to get details of plants being used by them for medicinal purposes. Details of the medicinal plants being used by the tribal population are presented (Table 1-2).

**Difficulties faced during fieldwork:** During the time of investigation, I faced lots of problems like language, unwillingness of the villagers to communicate with us regarding this topic especially as such practice is one of the major cultural assets of their secret knowledge; so initially they hesitated to co-operate with me. But gradually this problem was solved through the help of some local people apart from the villagers.

**Results:** In the present investigation, 32 species of medicinal plants belongs to 25 families, total 40 genera were used for the treatment of different diseases. The different plants which have been documented during the present investigation along with their mode of use in different health treatment by the local health healers are given in the table 1 and Table 2. Different parts of medicinal plants were used as medicine by the local traditional health healers. Among the different plant parts, the leaves were most frequently used for the treatment of diseases followed by root, bark and whole plant parts. From the study, it was found that plants are mostly used to treat different inflammation, cough and cold, leucoderma, various skin diseases, ulcers and leprosy.

**Table 1: Medicinal plants and treatment by the healers of santal tribe of Ramnathpur village**

| Serial no. | Scientific name    | Family    | Local name   | Parts used                     | Ailments and mode of medicinal use                                                                                  |
|------------|--------------------|-----------|--------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------|
| 1.         | Bombax ceiba       | Malvaceae | Aafola Simul | Bark of root of fruitless tree | To prevent pimples, parts smashed and apply on the affected area.                                                   |
| 2.         | Vachellia nilotica | Fabaceae  | Babla        | Bark                           | Skin disease, parts boiled and the juice is extracted, then apply locally.                                          |
| 3.         | Cynodon dactylon,  | Poaceae   | Durba ghas   | Leaf, root                     | To help blood clotting during cut, paste of both parts mixed with ash of burnt shell is apply on the affected area. |

| Serial no. | Scientific name                                                                                                          | Family                                             | Local name                                 | Parts used                              | Ailments and mode of medicinal use                                                                                                                                                                                                                                                                                                                                                   |
|------------|--------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|--------------------------------------------|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4.         | <i>Andrographis paniculata</i>                                                                                           | Acanthaceae                                        | Kalmegh                                    | Leaf                                    | To prevent skin disease, liver worm, blood purifier, paste of the parts made into pellets, one pellet taken in empty stomach everyday in the morning.                                                                                                                                                                                                                                |
| 5.         | <i>Ziziphus mauritiana</i>                                                                                               | Rhamnaceae                                         | Kul                                        | Bark                                    | To prevent sores, the bark paste is applied on affected area.                                                                                                                                                                                                                                                                                                                        |
| 6.         | <i>Azadirachta indica</i>                                                                                                | Meliaceae                                          | Neem                                       | Leaf                                    | To prevent skin disease, leaves of neem, kalmegh and salt are taken together, made into paste and it made into pellet. One pellet is taken in empty stomach in the morning.                                                                                                                                                                                                          |
| 7.         | <i>Kalanchoe pinnata</i>                                                                                                 | Crassulaceae                                       | Pathor kuchi                               | Leaf                                    | To prevent piles, part is smashed, made into paste and taken orally.                                                                                                                                                                                                                                                                                                                 |
| 8.         | <i>Nyctanthes arbortristis</i> ,<br><i>Adhatoda vasica</i> ,<br><i>Ocimum tenuiflorum</i> ,<br><i>Glycyrrhiza glabra</i> | Oleaceae,<br>Acanthaceae<br>Lamiaceae,<br>Fabaceae | Siuli,<br>Vasak,<br>Tulsi,<br>Yashti madhu | Leaves of first three and latex of last | To prevent fever with high temperature, cold and cough. In case of siuli, leaf is smashed and juice is taken orally with half teaspoon of mixture of 32 types of spices ( <i>batrisa masala</i> ). In case of vasak and yashtimadhu both are smashed, made into paste and taken orally. In case of tulsi, leaf is smashed, made into paste and taken orally with five drops of honey |
| 9.         | <i>Cajanus cajan</i>                                                                                                     | Fabaceae                                           | Arhar                                      | Leaf                                    | To prevent jaundice, leaf is smashed and the juice is taken orally.                                                                                                                                                                                                                                                                                                                  |

| Serial no. | Scientific name                                        | Family                       | Local name              | Parts used   | Ailments and mode of medicinal use                                                                                                                                             |
|------------|--------------------------------------------------------|------------------------------|-------------------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10.        | <i>Asclepias gigantea</i>                              | Apocynaceae                  | Swetakando              | Root         | To prevent sterility, part is smashed, made into paste and mixed with cowmilk whose calf bearing the same physical features as its mother. It is taken orally on every Sunday. |
| 11.        | <i>Moringa oleifera</i>                                | Moringaceae                  | Sainya                  | Leaf         | To prevent blood pressure, part is smashed and the juice is taken orally for three consecutive days.                                                                           |
| 12.        | <i>Shorea robusta</i>                                  | Dipterocarpaceae             | Sal                     | Latex        | To prevent cholera, the latex for the twig of the tree is taken orally.                                                                                                        |
| 13.        | <i>Hemidesmus indicus</i><br><i>Smilax macrophylla</i> | Asclepiadaceae,<br>Liliaceae | Anantamul,<br>Ramdatan, | Root & fruit | To prevent measles, root of 1st two and fruit of last two are taken together, made into paste and it is made into pellets, then taken orally.                                  |
| 14.        | <i>Catharanthus roseus</i>                             | Apocynaceae                  | Nayantara               | Leaf         | To prevent diabetes, juice of leaf is taken orally.                                                                                                                            |
| 15.        | <i>Eclipta Prostrata</i>                               | Asteraceae                   | Keshute                 | Leaf         | Leaf extraction use to promote hair growth and in Jaundice. Whole plant extraction used for skin diseases and Asthma.                                                          |
| 16.        | <i>Ficus bengalensis</i>                               | Moraceae                     | Aswatha                 | Bark         | Bark is anticeptic, astringent, laxative. Bark used in Diabetes, Diarrhea, Leucoderma.                                                                                         |
| 17.        | <i>Peltophorum pterocarpum</i>                         | Caesalpiniaceae              | Radhachura              | Stem bark    | The stem bark is useful in dysentery.                                                                                                                                          |

| Serial no. | Scientific name    | Family        | Local name | Parts used | Ailments and mode of medicinal use                                                                                         |
|------------|--------------------|---------------|------------|------------|----------------------------------------------------------------------------------------------------------------------------|
| 18.        | Portulaca oleracea | Portulacaceae | Nona shak  | Leaf       | Leaves are used as vegetable by tribal people. Leaf extraction is also useful in tumors, inflammation and nephropathy.     |
| 19.        | Mentha piperata    | Lamiaceae     | Pudina     | Leaf       | A volatile oil obtained from the plant is well known in medicine for its antiseptic, stimulant and carminative properties. |
| 20.        | Tarminalia chebula | Combretaceae  | Haritaki   | Fruit      | The fruits are used as anti-inflammatory, carminative and digestive agent.                                                 |

**Table 2: Medicinal plants and treatment by the healers of Santal tribe of Ekkadwar and Jambedia villages**

| Serial no. | Scientific name                                          | Family                              | Local name                | Parts used                 | Ailments and mode of medicinal use                                                                     |
|------------|----------------------------------------------------------|-------------------------------------|---------------------------|----------------------------|--------------------------------------------------------------------------------------------------------|
| 1.         | Tridax procumbens                                        | Compositae                          | Bissalyokarani            | Leaf                       | To stop bleeding from wounded area, the part is smashed, made into paste and it is applied locally.    |
| 2.         | Ficus religiosa, Achyranthes aspera, Ziziphus mauritiana | Moraceae, Amaranthaceae, Rhamnaceae | Ashwatha, Chirchithi, Kul | Leaf & bark, bark and root | To prevent diarrhoea, both the parts are smashed, made into paste, then it is boiled and taken orally. |
| 4.         | Hygrophila sp.                                           | Acanthaceae                         | Kulekhara                 | Leaf                       | To prevent anaemia, part is boiled, the juice is extracted and drink regularly.                        |
| 5.         | Spondeas mombin                                          | Anacardiaceae                       | Amrah                     | Pulp of fruit              | To prevent skin disease like Eczema, part is boiled, juice is extracted and applied locally.           |

| Serial no. | Scientific name                                                                          | Family                                                    | Local name                                 | Parts used              | Ailments and mode of medicinal use                                                                                                                               |
|------------|------------------------------------------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.         | Mangifera indica                                                                         | Anacardiaceae                                             | Mango                                      | Powder of burned leaves | To protect from toothache, the powder is used locally.                                                                                                           |
| 7.         | Andrographis paniculata                                                                  | Acanthaceae                                               | Kalmegh                                    | Leaf                    | To get relief from liverworm, leaves are boiled, juice is extracted and taken orally.                                                                            |
| 8.         | Azadirachta indica                                                                       | Meliaceae                                                 | Neem                                       | Leaf                    | To prevent from skin disease, Either leaves are smashed, made into paste and applied locally or leaves are boiled, juice is extracted and it is applied locally. |
| 9.         | Ficus bengalensis, Ziziphus mauritiana, Achyranthes aspera, Streblus asper, Piper nigrum | Moraceae, Rhamnaceae, Amaranthaceae, Moraceae, Piperaceae | Aswatha, Kul, Chirchiti, Saora, Golmorich. | Bark                    | To prevent pox, Bark of all these are smashed to prepare a paste and taken orally.                                                                               |
| 10.        | Curcuma longa, Azadirachta indica                                                        | Zingiberaceae, Meliaceae                                  | Holud, Neem                                | Root and leaf           | To cure fever with high temperature, Boiled neem leaves is mixed with smashed turmeric and the mixture is smeared all over the body before bath.                 |
| 11.        | Enhydra fluctuans                                                                        | Compositae, Asteraceae                                    | Hingche                                    | Leaf and stem           | To prevent low density of sperm in semen, Both the parts are smashed and the juice is taken orally.                                                              |
| 12.        | Ocimum gratissimum                                                                       | Lamiaceae                                                 | Ramtulsi                                   | Leaf                    | Fresh leaves are used in constipation, cough and fever and also in gonorrhoea with difficult urination.                                                          |

**Discussion and analysis:** The use of herbal medicines is wide spread in these regions with higher percentage of the tribal population relying on it. This is because of lack of awareness; shyness and lack of modern medical facilities available in their region and the high cost of modern medical system for treatment, which is unaffordable by tribal. The information documented in this work is totally from primary sources being based on the uses of the locally available plants by the people as their household remedies. The medicine varies according to the symptoms and it means that a particular plant is sometime prescribed for different ailments and sometimes they apply a mixture of plants for remedy of diseases. The observation of present study showed that traditional medicine plays a significant role among the tribal people of Bankura. Present research work was conducted in three Santhal villages. These three villages are not totally tribal villages. Some caste populations like Brahmin, Kayastha and Bhuinya are also there; whereas the former one is well connected with the main town, the latter two are less connected. The size of the population is greater in Ramnathpur and Ekkadwar than the other. The villagers of Ramnathpur village and Ekkadwar have their own agricultural land, so their economic condition is far better whereas, in Jambedia village, most of the villagers are share croppers and agricultural labourers. Only a few of them own agricultural land, which are with less fertile soil and small in size. Their economic condition is very poor.

In case of Ramnathpur and Ekkadwar villages, with suitable modern medical amenities as well as better economic conditions, the villagers still depend upon the local medicines extracted from medicinal plants present in the vicinity. Availability of ingredients as well as medical practitioners (*Kabiraj*) are the two factors that enhanced their acceptance of Ayurvedic treatment. Lastly, it can be said that, the faith upon their own cultural tradition is another main factor to retain such practices throughout the generation. On the other hand, in Jambedia village the villagers are deprived of basic amenities except for drinking water. There is one sub-health center very near to the village and the villagers are depending on it mainly for major diseases. They are able to cure some mild diseases like cold and cough, fever, jaundice etc. through Ayurvedic medicines available in the surrounding environments. *Kabiraj* lives about 3-4 km away from the village. Some major diseases like chicken pox, tetanus and sexual diseases are also cured through these practices. Among sexual diseases especially the low density of sperm count in the semen is cured through such practices. In this case, they use *Hinche* leaves as remedy. During our investigation, it is seen that in case of a particular disease, different remedies are used in three villages and depend upon the availability of any particular item in the surrounding environment. It means that, their extent of knowledge regarding the surrounding flora is vast. They are well informed of the medicinal value of most of the plants in their surroundings throughout the generations

and it is totally an oral tradition. They have enough knowledge regarding the varieties and range of remedies of any particular disease. For example, in case of skin disease like haja, bark of Babla tree is used after boiling in Ramnathpur village, whereas, juice of boiled Amrah is used after being made into paste. In case of bleeding of cuts and wound, root of Adagethe and Durba leaf are used in Ramnathpur village. In Jambedia village both root and stem of Durba grass is used for the same purpose.

**Conclusion and Recommendations:** The rural area of Bankura district which was my study area is an important source of traditional medicines. More information may be explored from the peoples residing in the remote villages in this district. The traditional healers are the main source of knowledge on medicinal plants. This knowledge is transmitted orally from generation to generation. It seems that it is vanishing from the modern society since younger people are not interested to carry on this tradition. It is also observed that some traditional plants in that area are fast disappearing. The conservation efforts are needed by plantation and protection of these plants with maximum participation of local people.

Medicinal plants play an important role in providing knowledge to the researchers in the field of Ethno- botany and Ethno- pharmacology. In Bankura district, many local people are going for agriculture and sustainable harvesting of plants with medicinal value which helps not only in conservation of these important traditional medicinal plants but also in marketing of these plants and their products for economic growth of the people. To avoid the extinction in bio-diversity, some selective measures would be taken to prevent these medicinal plants from all of the natural calamities. These may be in the following ways. Cultivation of rare medicinal plants; provision of elaborative training and special extension services to farmers engaged in cultivation of medicinal plants; establishment of herbal garden in forest areas; and creation of seed-bank.

In pursuance of the basic concept of sustainable development, ethno medicine plays a great role. Ayurvedic or herbal medicines are produced from different plants, parts of different trees along with other metals and non-metals. Most of these inorganic elements are either micro or macro elements of nutrition for human body. These strengthen our immunity power, to destroy the antibodies entered into the human body completely along with minimal or zero side-effect, Herbal or Ayurvedic medicines are the best. Keeping these things in mind, recently, Central Govt. of India recognized Ayurvedic treatment as parallel treatment procedure even where Allopathic treatment is available. In the tribal areas, primary health centers may run Ayush clinic. The registered medical practitioners may advise for the ayurvedic medicines in their prescriptions. Recently, the State Govt. of West Bengal is trying to spread the Ayurvedic treatment among

the common people. Accordingly, herbal gardens are encouraged to develop. Thus, betterment of public health has been associated with the forestation and environmental up gradation.

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