

## Study of an Ethnobotany at the Village Dohanagar, Naogaon

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**Abstract:** An ethnobotanical study of the village Dohanagar, under Patnitala Upazilla of Naogaon district was made. Information gathered through structural questionnaire and interviews shows that in the village, among 102 house holds 20 belong to the Santhal tribe who mostly use different plant species for their diseases and ailments. During the survey, 79 plant taxa belonged to 71 genera under 40 families were mentioned by them having economic importance. 55 plants are used only as medicine and 24 plants are used both as medicine and other purposes. Different plant parts of different spp. are used as medicine for treating various diseases; bark of 12, leaf of 72, fruit of 41, root of 25, flower of 1, seed of 3, stem of 3, rhizome of 2, bulb of 3, latex of 3, wood 1 and whole plant of 8 species were used as medicine. It was observed that the availability of these plants is decreasing at an alarming rate. This observation also reveals that habitat destruction, over exploitation and unplanned agriculture were the reasons for depletion of medicinal plants. Therefore, the medicinal plants used as traditional healthcare system need urgent conservation.

**Key words:** Ethnobotany, Santhal, Naogaon.

### INTRODUCTION

Ethnobotany is the study of the relationship between plants and people: From “ethno”–study of people and “botany”–study of plants. Ethnobotany is considered a branch of ethnobiology. Ethnobotany studies the complex relationships between (uses of) plants and cultures. The focus of ethnobotany is on how plants have been or are used, managed and perceived in human societies and includes plants used for food, medicine, divination, cosmetics, dyeing, textiles, for building, tools, currency, clothing, rituals and social life<sup>[13]</sup>.

Ethnobotany, in its totality, is virtually an old field with new dimension of research. And if this field is investigated thoroughly and systematically, it will yield results of great value missing the ethnologists, archaeologists, anthropologists, plant-geographers, ethnobotanists, botanists and linguists and ultimately to pharmacologists and phytochemists<sup>[11]</sup>.

Bangladesh is very rich in ethnocultural heritage and traditional use of plant materials that may be of special interest in ethnobotanical informations. About 80 percent people of the country live in the villages and a considerable proportion is tribals living in remote forest areas<sup>[1]</sup>.

The village "Dohanagar" under Patnitala Upazilla of Naogaon was selected as the study area due to its ethno-catted significance. During ethnobotanical field studies in the village we came across a large number

of tribal people "Santhal" who are using wild and semi-wild plants for medicine and other purposes. They are very experienced in traditional medicine and are actually prescribing these plants materials to cure different diseases. The data were collected either from local medicinemen or ordinary people who accompanied us in the field<sup>[13]</sup>.

### MATERIALS AND METHODS

The present work is mainly based on information gathered from the interview with the "Santhals" on the plants having economic importance to them. Relevant plants were collected from the study area, identified and preserved at the Herbarium of the Department of Botany, Rajshahi University.

#### The Present Investigation Is Divided into Two Parts:

Part-I. Interview with "Santhals", collection, study, identification and preservation of plants: First step was interviewing the "Santhals" about the plants they used in their daily life. These included the plants that have some economic importance as fruits, vegetables, furniture, drug, etc. Collections were made throughout the year and particular care was taken not to miss the flowering stages or the fruits. In all cases multiple sets of collections were made. During survey date, collection number, habitat, local name, part use and distribution were recorded. Herbarium sheets were prepared in multiple sets and flowers were preserved in

70% alcohol for future study.

Publication of Bhattachariya<sup>[2]</sup>, Biswas<sup>[3]</sup>, Ghani<sup>[4][5]</sup>, Hassan<sup>[6][7]</sup>, Hooker<sup>[8]</sup>, Huq<sup>[9][10]</sup>, Jain<sup>[12]</sup>, Khan<sup>[14][15]</sup>, Anisuzzaman<sup>[18]</sup>, Kirtikar<sup>[16]</sup> and Prain<sup>[17]</sup> were consulted for identification and collection information about of medicinal uses of the taxa.

Part-II. Study of ethnobotanical aspects: For the present investigation interviews were taken from the "Santhals" in the study area about different aspects, i.e. a) Holding numbers, b) Owner of the house, c) Family members and age groups d) Source of income, e) List of plants used by them, f) Purpose of use, g) How much amount they used, h) Method of use, i) From where they get the plants and j) Abundance of the plants.

## RESULTS AND DISCUSSION

Most of the Santhal in the village "Dohanagar" are poor and illiterate. In one hand, these Santhals are out of the reach of modern medicines and on other hand, the market price of most available medicines are very expensive. As a result, these medicinal plants are used by them to cure all of the diseases. The wide use of local flora by the tribal people suggests that cultivation and conservation of indigenous useful plants should be

encouraged. There is a need of intensive work in this direction which may help tribal development.

From the available information it is revealed that this ethnic community used plant species, which are not generally used by other population of the village.

Data have been gathered on the traditional uses of plant species, especially for abscess, asthma, anaemia, abortion, burning sensation, blood pressure, cough, chickenpox, constipation, dysentery, diarrhoea, diuretic, diabetes, eczema, fever, fracture, headache, heart disease, itches, jaundice menstrual disease, paralysis, piles, skin disease, snake-bite, sex problem, tooth disease, vomiting, wound, worm and others.

Further, this ethnic community is using plant species or their parts for various other purposes, e.g. in poultry disease, as traditional needle, for children's games and toys, for dye, in preparation of fermentation agent, for tooth brush and used in different worship<sup>[13]</sup>.

By applying survey, interview, collection and identification methods, different ethnobotanical information were accumulated. The well analysed and check listed information about the plant materials collected from the study area are described below.

**Table 1:** The table mentioned local name, scientific name, family, part use and process of use for each species.

Local name	Scientific name and family	Part use	Process of use
Ata	<i>Annona squamosa</i> L. Family: Annonaceae	Leaf, root	Pastes of leaves are used in abscess. Juice of roots is used in dysentery.
Amrul	<i>Oxalis corniculata</i> L. Family: Oxalidaceae	Leaf	Juice made from leaves is used in anaemia. Vegetable made from young leaves are used in cough.
Apang	<i>Achyranthes aspera</i> L. Family: Amaranthaceae	Leaf, root	Juice of roots is used in abortion and diuretic. Paste of leaves is used in eczema.
Anaros	<i>Ananas sativus</i> Schult.f. Family: Bromeliaceae	Fruit	Juice of unripe fruit is used in abortion. Ripe fruit is used cough, diuretic, fever, helminthiasis and worm.
Arjun	<i>Terminalia arjuna</i> Bedd. Family: Combretaceae	Leaf, bark, fruit	Leaf soaked in water over night in burning sensation. Juice made from bark mixed with water used in blood pressure. Dust made from dry shoot bark mixed with water used in heart disease. Unripe fruits are used in worm.
Amlaki	<i>Phyllanthus emblica</i> L. Family: Euphorbiaceae	Fruit	Ripe fruits are used in burning sensation, vomiting, cough and indigestion. Dried fruits are used in jaundice.
Arhar	<i>Cajanus cajan</i> (L.) Millsp. Family: Fabaceae	Leaf, root	Decoction of leaves is used in cattle dyspepsia. Juice made from roots is used in diabetes. Juice made from young leaves is used in jaundice.

**Table 1:** Continue.

Akanda	<i>Calotropis procera</i> Br. Family: Asclepiadaceae	Leaf	Extract of leaves are used in piles.
Am	<i>Mangifera indica</i> L. Family: Anacardiaceae	Leaf	Decoction of young leaves is used in toothache.
Bel	<i>Aegle marmelos</i> (L.) Correa Family: Rutaceae	Leaf, fruit	Juice of young leaves is used in abscess and fever. Decoction of immature fruits is used in baby's dysentery. Ripe fruits are used in indigestion.
Bot	<i>Ficus benghalensis</i> L. Family: Moraceae	Leaf	Leaves are useful applied as poultice in abscess.
Basak	<i>Adhatoda vasica</i> Nees. Family: Acanthaceae	Leaf, bark	Juice made from young leaves is used in asthma and cough. Juice made from bark and leaves are used in vomiting and worm.
Bohera	<i>Terminalia belerica</i> Roxb. Family: Combretaceae	Fruit, seed	Fruits are used in burning sensation. The oil extracted from the seeds is used in rheumatism.
Boroi	<i>Zizyphus mauritiana</i> Lamk. Family: Rhamnaceae	Leaf	Paste made from young leaves is used in headache.
Bhant	<i>Clerodendrum viscosum</i> Vent. Family: Verbenaceae	Leaf	Juices made from leaves are used in vomiting, worm and dyspepsia.
Chatim	<i>Alstonia scholaris</i> (L.) R.Br. Family: Apocynaceae	Bark	Juice made from bark is used in dysentery and fever.
Dhutra	<i>Datura metel</i> L. Family: Solanaceae	Leaf	Cigarette made from it leaves are smoked in asthma. Pastes made from leaves are used in rheumatism.
Dalim	<i>Punica granatum</i> L. Family: Punicaceae	Fruit	Juice of fruits is used in anaemia. Immature fruit juice is used in dysentery. Ripe fruits are used in diarrhoea.
Datmajan	<i>Glycosmis pentaphylla</i> Corr. Family: Rutaceae	Fruit, leaf	Juice of ripe fruit is used in dysentery. Juice of leaves is used in jaundice.
Dadmardan	<i>Cassia alata</i> L. Family: Fabaceae	Leaf	Decoction of leaves is used in eczema.
Durba	<i>Cynodon dactylon</i> Pers. Family: Poaceae	Leaf, whole plant	Paste made from young leaves is used in skin disease. Paste made from whole plant is used in stop bleeding and wound.
Ghritakumari	<i>Aloe barbadensis</i> Mill. Family: Liliaceae	Leaf	It leaf mucilage is used in piles. Juice made from leaves is used in menstrual disease and sexual problems.
Holdi	<i>Curcuma longa</i> L. Family: Zingiberaceae	Rhizome	Rhizome is properly used in abscess. Paste made from rhizome is used in eczema.
Haritaki	<i>Terminalia chebula</i> Retz. Family: Combretaceae	Fruit	Ripe fruits are used in constipation and indigestion. Unripe fruits are used in rheumatism and urinary disease.
Hatisur	<i>Heliotropium indicum</i> L. Family: Boraginaceae	Leaf	Decoction of leaves is used in fever. Paste made from leaves is used in skin disease.
Harzora	<i>Vitis quadrangularis</i> Wall. Family: Vitaceae	Stem	Paste made from the stem barks are used in bone fracture.

**Table 1:** Continue.

Jagathmadan	<i>Justicia gendarussa</i> L. Family: Acanthaceae	Leaf	Juice made from leaves is used in asthma. Paste made from leaves is used in fracture, itches and wound.
Jambura	<i>Citrus grandis</i> (L.) Osb. Family: Rutaceae	Fruit	Juice made from ripe fruit is used in anaemia.
Jam	<i>Syzygium cumini</i> Skiel. Family: Myrtaceae	Bark, seed	Paste made from the bark is used in dysentery and wound. Dry seed dust mixed with normal water used in diabetes.
Jogdumur	<i>Ficus recemosa</i> L. Family: Moraceae	Latex, fruit	Latex is used in piles. Curry made from unripe fruit is used as diabetes.
Kantanotey	<i>Amaranthus spinosus</i> L. Family: Amaranthaceae	Whole plant	Juice made from whole plant is used in asthma and fever.
Kalomegh	<i>Andrographis paniculata</i> Nees. Family: Acanthaceae	Leaf, whole plant	Paste of leaves is used in wound and itches. Juice made from whole plants is used in dysentery, diarrhoea and fever. Juice of leaves mixed with salt and water used in helminthiasis.
Kalokeshi	<i>Eclipta alba</i> (L.) Hassk. Family: Asteraceae	Leaf	Paste made from young leaves is used in wound and skin disease.
Kathbel	<i>Feronia limonia</i> (L.) Swingle Family: Rutaceae	Leaf, fruit	Juice made from leaves is used in vomiting. Fruit pulp is used in diuretic.
Kathal	<i>Artocarpus heterophyllus</i> Lamk. Family: Moraceae	Leaf, root, bark	Juice made from young leaves is used in asthma and itches. Juice made from young roots is used in diarrhoea. Juice made from bark is used in excessive menstrual discharge.
Kala	<i>Musa paradisiaca</i> L. Family: Musaceae	Fruit	Sap of the central cylindrical stem of the fruited plants is used in blood pressure.
Korola	<i>Momordica charantea</i> L. Family: Cucurbitaceae	Leaf, fruit	Juice made from leaves is used in chickenpox and rheumatism. Curry made from unripe fruit is used as diabetes.
Kalkasunda	<i>Cassia sophera</i> L. Family: Fabaceae	Leaf, root	Decoction of leaves and roots are used in dyspepsia.
Kakmachi	<i>Solanum nigrum</i> L. Family: Solanaceae	Fruit	Juice made from green fruits is used in diuretic and heart disease.
Kapalputki	<i>Physalis minima</i> L. Family: Solanaceae	Root	Juice made from roots is used in diuretic.
Kamranga	<i>Averrhoa carambola</i> L. Family: Averrhoaceae	Fruit	Fruits are used in fever and jaundice. Fruit is also eaten a good remedy for bleeding piles.
Kuch	<i>Abrus precatorius</i> L. Family: Fabaceae	Seed	Paste made from seeds is used in paralysis.
Lajjabati	<i>Mimosa pudica</i> L. Family: Fabaceae	Root	Decoction of roots is used in fever. Juice of root is used in snake-bite.
Mehendi	<i>Lawsonia inermis</i> L. Family: Fabaceae	Leaf	Paste made from leaves is used in wound and burning sensation.

**Table 1:** Continue.

Madar	<i>Erythrina variegata</i> L. Family: Fabaceae	Bark, root, leaf	Juice of bark is used in fever. Juice made from roots are used the flow of menstrual period when this is absent. Juice made from leaves is used in toothache.
Muktajhuri	<i>Acalypha indica</i> L. Family: Euphorbiaceae	Leaf	Fresh leaf juice is used in skin disease.
Neem	<i>Azadirachta indica</i> A. Juss. Family: Meliaceae	Leaf	Juice made from young leaves mixed with water of boil rice used in worm. Leaves are used in chickenpox. Paste of leaves is used in eczema and itches. Juice made from young leaves mixed with salt and water used in helminthiasis.
Narikel	<i>Cocos nucifera</i> L. Family: Arecaceae	Root, fruit	Juice of roots is used in diuretic and menstrual disease. Green coconut water is commonly used as dehydrating agent in diarrhoea.
Neshinda	<i>Vitex negundo</i> L. Family: Verbenaceae	Root, leaf	Juice of roots is used in fever. Paste of leaves is used in rheumatism.
Noteysak	<i>Amaranthus lividus</i> L. Family: Amaranthaceae	Root	Roots act as reduce menstrual flow.
Piaj	<i>Allium cepa</i> L. Family: Liliaceae	Bulb	Juice of bulb/scales is used in cough and headache.
Patharkuchi	<i>Kalanchoe pinnata</i> (Lamk.) Pers. Family: Crassulaceae	Leaf	Juice made from young leaves is used in cough, dysentery, diuretic and diabetes. Paste of leaves is used in fracture.
Papaya	<i>Carica papaya</i> L. Family: Caricaceae	Fruit, latex	Fruit juice is used in constipation. Latex is used in itches. Ripe fruits are used in indigestion, liver disease and diarrhoea.
Piyara	<i>Psidium guajava</i> (L.) Bat. Family: Myrtaceae	Bark, fruit, leaf	Juice made from the stem bark is used in blood dysentery. Fruits are used in diarrhoea. Decoction of leaves is used in toothache. Young fruits are used in worm.
Rashun in	<i>Allium sativum</i> L. Family: Liliaceae	Bulb	Bulb is used in piles. Juice of bulb is used rheumatism.
Rendri	<i>Ricinus communis</i> L. Family: Euphorbiaceae	Seed, leaf	The oil extracted from the seeds is used in rheumatism. Paste made from leaves is used in headache.
Sissoo	<i>Dalbergia sissoo</i> Roxb. Family: Fabaceae	Wood	Paste made from wood is used in abscess.
Sarpagandha	<i>Rauvolfia serpentina</i> Benth. Family: Apocynaceae	Root	Juice made from roots is used in blood pressure and heart disease. Decoction of roots is used in dysentery and diarrhoea.
Sogina	<i>Moringa oleifera</i> Lamk. Family: Moringaceae	Fruit, root	Fruits are used in chickenpox and paralysis. Decoction of roots is used in fever.
Shimul	<i>Bombax ceiba</i> L. Family: Bombacaceae	Bark, root	Juice made from barks is used in dysentery and excessive menstrual discharge. Juice made from immature plant roots are used in diabetes and sexual problems.

**Table 1:** Continue.

Siakanta	<i>Argemone mexicana</i> L. Family: Papaveraceae	Root, stem, latex	Juice made from roots is used in diuretic. Curry made from of stems is used in diabetes and jaundice. Latex is used in itches and skin disease.
Satamuli	<i>Asparagus racemosus</i> L. Family: Liliaceae	Root, whole plant	Juice made from the tuberous roots is used in diarrhoea, diabetes and jaundice. Juice of whole plant used in urinary disease.
Setadron	<i>Leucas lavendulifolia</i> Sm. Family: Lamiaceae	Leaf	Juice made from young leaves is used in fever and worm.
Sarnalata	<i>Cuscuta reflexa</i> Roxb. Family: Convolvulaceae	Whole plant	Decoction of whole plant is used in liver disease.
Talmisri	<i>Scoparia dulcis</i> L. Family: Scrophulariaceae	Root	Juice made from roots is used in snake-bite.
Tentul	<i>Tamarindus indica</i> L. Family: Fabaceae	Fruit, leaf	Ripe fruit pulps are used in burning sensation. Juice of leaves is used in heart disease.
Tulsi	<i>Ocimum sanctum</i> L. Family: Lamiaceae	Leaf, root	Juice made from young leaves is used in cough. Juice of roots is used in fever.
Thankuni	<i>Centella asiatica</i> (L.) Urban Family: Apiaceae	Whole plant, leaf	Vegetable of whole plants are used in dysentery. Paste made from young leaves is used in eczema and headache.
Tal	<i>Borassus flabellifer</i> L. Family: Arecaceae	Fruit	Pulp of unripe fruit is used in diuretic.
Telakucha	<i>Coccinea cordifolia</i> (L.) Cogn. Family: Cucurbitaceae	Leaf	Vegetable made from young leaves are used in diabetes and fever.

**Plant Used by Other Purposes:**

**1. Plant Used in Veterinary**

Local name	Scientific name	Part use	Process of use
Kantanotey	<i>Amaranthus spinosus</i> L.	Whole plant	Increasing cow milk.
Kadam	<i>Anthocephalus chinensis</i> (Lamk.) Rich ex Walp.	Stem bark	Cattle dyspepsia
Sogina	<i>Moringa oleifera</i> Lamk.	Stem bark	Cattle dyspepsia
Piyara	<i>Psidium guajava</i> (L.) Bat.	Stem bark	Cattle wound.
Dalim	<i>Punica granatum</i> L.	Fruit	Pig ascaris
Tetul	<i>Tamarindus indica</i> L.	Ripe fruit	Pig diarrhoea

**2. Plant Spine Used as Traditional Needle**

Local name	Scientific name	Process of use
Bel	<i>Aegle marmelos</i> (L.) Correa	Perforating ear and nose.
Kejur	<i>Phoenix sylvestris</i> (L.) Roxb.	Cake design.
Boroi	<i>Zizyphus mauritiana</i> Lamk.	Burst boils and abscess.

**3. Plant Used in Various Religious Worship.**

Local name	Scientific name	Part used
Bel	<i>Aegle marmelos</i> (L.) Correa	Leaf
Simul	<i>Bombax ceiba</i> L.	Tree
Bot	<i>Ficus benghalensis</i> L.	Tree
Pakur	<i>Ficus religiosa</i> L.	Tree
Tulshi	<i>Ocimum sanctum</i> L.	Whole plant

#### 4. Plant Used for Dye.

Local name	Scientific name	Part use	Process of use
Pui	<i>Basella alba</i> L.	Ripe fruit	Violate dye
Sitki	<i>Phyllanthus reticulatus</i> Poir.	Ripe fruit	Violate dye
Tetul	<i>Tamarindus indica</i> L.	Seed power	Dye
Mehedi	<i>Lawsonia inermis</i> L.	Leaf	Dye

#### 5. Plant Used for Tooth Brush

Local name	Scientific name	Part used
Neem	<i>Azadirachta indica</i> A. Juss.	Stem
Piyara	<i>Psidium guajava</i> (L.) Bat.	Stem
Jam	<i>Syzygium cumini</i> Skiel	Stem
Lalverenda	<i>Jatropha gossypifolia</i> L.	Stem
Atissora	<i>Glycosmis pentaphylla</i> Corr.	Stem

#### 6. Plant Used in Preparation of Fermenting Medium for Their Traditional Liquor.

Local name	Scientific name	Part used
Kathal	<i>Artocarpus heterophyllus</i> Lamk.	Young leaf
Dhan	<i>Oryza sativa</i> L.	Grain
Akh	<i>Saccharum officinarum</i> L.	Tip leaf

#### 7. Plant Related Children's Games and Toys.

Local name	Scientific name	Part used	Games/Toy
Kathal	<i>Artocarpus heterophyllus</i> Lamk.	Leaf	Noddang-dakka
Kejur	<i>Phoenix sylvestris</i> (L.) Roxb.	Seed	Guti khela

#### 8. Plant Used for Various Purposes.

Local name	Scientific name	Part used	Purpose
Neem	<i>Azadirachta indica</i> A. Juss.	Fruit juice	Lice killer
Bans	<i>Bambusa balcooa</i> Roxb.	Stem	House construction.
Simul	<i>Bombax ceiba</i> L.	Wood, leaf	Fuel. Cheap furniture.
Tal	<i>Borassus flabellifer</i> L.	Fruit juice, leaf	Cake, Hand fan.
Narikel	<i>Cocos nucifera</i> L.	Coir	Mosquito repellent
Kejur	<i>Phoenix sylvestris</i> (L.) Roxb.	Leaf	Mat

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