

Research Article

ETHNOMEDICINAL PLANTS USED BY SOME OF THE TRIBAL COMMUNITIES OF PANCHET SOIL CONSERVATION DIVISION, BANKURA DISTRICT, WEST BENGAL, INDIA

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ABSTRACT: The Indigenous Traditional knowledge (ITK) is scientifically and culturally significant. This article focuses on the documentation of ITK of medicinal plants that are used against different diseases by the tribal people of Panchet Soil Conservation Division of Bankura district, West Bengal. A comprehensive survey was carried out between July 2014–January 2016 in 19 different locations of Panchet Soil Conservation Division. Data were obtained through semi–structured questionnaires, participant observation and plant walks with 33 respondents. A total of 12 plants belonging to 11 families were documented for 19 different disorders. Out of 12 plants 10 have been reported as new uses for the first time. It is expected that the documentation of medicinal plant knowledge will further promote bio-prospecting and pharmaceutical research.

Key words: Ethnomedicinal plants, Panchet Soil Conservation Division, Bankura District, West Bengal.

INTRODUCTION

Indigenous Traditional Knowledge (ITK) applies to the knowledge that is local in extent and embedded in parochial cultural traditions. Its distribution is fragmentary. Although on the whole more widely shared locally than specialized scientific knowledge, no one person, authority or social group knows it all (Sillitoe, 1998).

India, a mega–diversity country is also a land

of ethnic culture and have plethora of traditional knowledge thus it is traditionally very rich but due to lack of fine technological approach this knowledge is slowly losing its importance in the global context. This traditional system of medicine plays an important role in the health care of the rural people for all types of ailments. In India non treatment strategies [also known as complementary and alternative medicine (CAM)] constitutes almost 80% of the

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population medicinal needs (Modak *et al.*, 2015).

Southern part of West Bengal, particularly West Midnapore, Bankura and Purulia are with many ethnic communities, *viz. Santal, Bauri, Munda, Khairia, Orao, Dule*, etc. and thus much under privileged. They mostly depend on forest resources for their daily needs. The medicine men rely on the forest for extraction of various medicinal plants given for treatment in various ailments. The *gunins* or the tribal medicine men in a particular locality is enriched with the knowledge of the use of these medicinal plants. Documentation of this knowledge is of utmost importance because the present generation is not getting involved in this practice. As a result this verbally transmitted knowledge is slowly becoming extinct.

Panchet Soil Conservation Division of Bankura district is a virgin pocket with rich biodiversity consists of nearly 400 species of angiosperms. This region is also inhabited by numbers of tribal communities. In the present study, few field trips were conducted in that area in a sense to document the novel information particularly on the nonconventional medicinal plants and their uses. Different medicine men as well as villagers were questioned with the help of a previously prepared questionnaire. Though most of the cited plants are well known for their medicinal uses but here we have discussed about some ailments that were not cited against that plant previously. This documentation is very useful as it would help to preserve this valuable knowledge for future generations and store the source of medicine of many ailments. Present paper deals with 12 medicinal plants and their uses in various ailments. Among them 10 are new claim regarding the type of ailments treated. The two

plants although sited before in the same disease but the poly herbal compositions are new claim.

MATERIALS AND METHODS

Study site

Bankura is one of the districts of Burdwan division. It is situated between 22° 38' and 23° 38' north latitude and between 86° 36' and 87° 46' east longitude. It has an area of about 6,788 km². On the north and north-east the district is bounded by Bardhaman district, from which it is separated by the Damodar River. On the south-east it is bounded by Hooghly district, on the south by Paschim Medinipur district and on the west by Purulia district.

Sampling

The study was conducted in few places in Panchet Soil Conservation Division of Bankura district during the month of July 2014 to January 2016. Informants were 9 *gunins* (8 male and 1 female) and 24 knowledge holders of 19 villages were questioned by a previously prepared semi-structured questionnaire (Case, 1990), who voluntarily participated in our question session. During data collection, the healer was further asked about the plants used, disease (s) treated, mode of collection and utilization of plants parts, formulations, mode of administration, and any precautions which needed to be followed during medication period together with any other details which the healer wanted to provide. The details of the informant are presented in Table 1. The selection of the medicine man as well as knowledge holders was purely based on the information provided by the local villagers. Plant walks were conducted mostly with the traditional healers and during these walks, medicinal plants would be pointed out by the healer as we passed by them. The

plants specimens (usually 3–4) were collected from the field with the help of medicine man and herbariums were prepared and the plants were identified with the help of suitable literature (Sanyal, 1994; Annon 1997; Annon, 2015). Plants were pressed, poisoned and herbarium specimens were prepared following standard literature (Lakshiminarasimhan, 2011) and were submitted to Herbarium of Sundarban Hazi Desarat College for future reference.

Observation

Diseases treated by the medicine men with the medicinal plants of Bankura district along with the mode of preparation and dose.

1) *Achyranthes aspera* L. (Amaranthaceae)

Vernacular name: Chirchere (Bengali, Santali)

Collection Number: Banerjee 11.

Medicinal uses

a) Dysentery:

Mode of preparation and Dose: About 8 cm tap root with its fibrous branches are crushed with two and a half black pepper (*Piper longum*) and is made into small tablets (size of a gram). One tablet is given every morning for treating dysentery till it is cured.

b) Teeth cavity:

Some quantity of root is rubbed externally on the teeth for treating teeth cavity in the morning before brushing.

Previous reports: Chopra *et al.* (1956) cited that the different plant is used as/in diuretic, dropsy, boils, skin eruptions, colic and snake bite, astringent, emetic in hydrophobia, mad dog biting, head sore, leg sore, ear sore in children, burning sensation during urination in women, stoppage of bleeding after abortion, contraceptive, scorpion stings. Seeds are used in piles (Pal and Jain, 1998). Parinitha *et al.*

(2004) reported that root paste is used in scorpion sting. Root is also used to treat worm infestation (Mandal *et al.*, 2014).

Root of this plant is used on sprained and strained muscle and joints as well as to cure hemorrhoids (Pattanayak *et al.*, 2012). Mahmood *et al.* (2011) documented that root and plant parts are used for syphilis, malaria, vomiting, heart diseases and useful in ulcers, as a mild astringent, snakebites.

2) *Aloe vera* (L.) Burm. f. (Aloaceae)

Vernacular name: Ghrito-kumari (Bengali, Santali)

Collection Number: Mandal 179.

Medicinal uses

Leucorrhoea (white vaginal discharge):

Mode of preparation and Dose: The mucilage of one matured leaf is mixed with 1–2 pinch sugar. One tea spoon is taken every morning for 2–3 days to treat white discharge problems in women.

Previous reports: Chopra *et al.* (1956) reported that the plant is used in stomachic, purgative, emmenagogue, piles, rectal fissures, anthelmintic, cathartic, constipation, menstrual suppression, colic Rahmatullah *et al.* (2009) reported that the inner portions of leaf are taken with water to treat constipation and in tuberculosis. Ahmad *et al.* (2009) recorded that extract of fresh aerial parts are used to lower the blood glucose level in diabetes.

3) *Andrographis paniculata* Nees (Acanthaceae)

Vernacular name: Kalmegh (Bengali, Santali).

Collection Number: Mandal 243.

Medicinal uses

Fever:

Mode of preparation and Dose: 10 grams of

leaves of *Aegle marmelos* (belpata) and two and a half piece white rice (atop) are mixed with 5 grams of leaves of this plant and small quantity of water to make a paste. The paste is given for a few days to treat fever.

Previous reports: Chopra *et al.* (1956) documented that various plant parts are used in anthelmintic, general debility of children, dysentery, dyspepsia, fever, stomachic, tonic, antihelminthic. Pal and Jain (1998) reported that root and aerial parts are used as/in treat general debility of children, fever, colic pain, itching, bowl complaints in children, liver complaints, jaundice, stomachic, tonic, febrifuge. Muthu *et al.* (2006) reported leaf is used in bitten site of snake, beetle and scorpion and diabetes.

4) *Cissus quadrangularis* L. (Vitaceae)

Vernacular name: Kamraj (Bengali, Santali).

Collection Number: Mandal 111.

Medicinal uses

a) Body ache or any pain:

Mode of preparation and Dose: The 1-2 inch stem is crushed and mixed with 25gm mustard oil/ghee and tied around the place to treat body ache or any pain.

b) Nerve problems:

Mode of preparation and Dose: Whole stem is crushed and boiled excessively with ghee (as needed) and then cooled. Then it is massaged all over the body to treat nerve problems. Specifically it has to be boiled for long time and excessively.

c) Weakness due to ailments:

The whole plant is crushed and candy sugar (*michri*) is added as necessary. Water is added and made into a mixture. One glass of the mixture is given twice daily to treat the disease. This formulation is not advocated for the persons suffering from asthma.

Previous reports: Different plant parts are

used in digestive troubles, scurvy, otorrhoea, epistaxis, asthma, bone fracture, burns and wounds. Whole plant is used as purgative (Annon., 1950). Chopra *et al.* (1956) cited that stem is used in irregular menstruation, scurvy, bone fracture and asthma. Mishra *et al.* (2008) reported that root and stem is used to treat fractures and scurvy.

5) *Cynodon dactylon* (L.) Pers. (Poaceae)

Vernacular name: Durba (santal, bengali).

Collection Number: Mandal 99.

Medicinal uses

a) Amenorrhoea (Periods stopped for 3 months or more)

Mode of preparation and Dose: Roots mixed with young rhizome of *Curcuma longa* L. (*kachaholud*) and 10 gm candy sugar (*michri*) are mixed together and made into small tablets (like size of black peeper) and 1-2 tablets are given in the in the morning for 7 days to cure amenorrhoea, periods stopped for 3 months or more.

Previous reports: Whole plant is used in diuretic, dropsy, syphilis, wound infection, piles (Parekh and Chanda 2007). Hussain *et al.* (2008) stated whole plant is used as laxative, astringent, diuretic. Ayyanarand Ignacimuthu (2011) stated that leaf juice are used in wounds and the whole plant is used in itching. It is used in haematuria (Pattanayak *et al.*, 2012) as well as in bloody enteritis and dysentery (Pattanayak *et al.*, 2015a).

6) *Hibiscus rosa-sinensis* L. (Malvaceae)

Vernacular name: Joba (Bengali, Santali).

Collection Number: Banerjee 17.

Medicinal uses

a) Placental problems (to evacuate retained placenta):

Mode of preparation and Dose: Red flower

Table 1: Details of the Medicine man contacted.

Sl. No.	Name	Age	Sex	Village
1	GurupadaKonar	35	M	Parashidanga
2	TapanKonar	30	M	Parashidanga
3	SurjoMurmu	35	M	Bongbedia
4	GoratanKonar	38	M	Parashidanga
5	NokoliBeshra	40	F	Hakur
6	Durgadash Khan	42	M	Baharamoni
7	ShibuDule	36	M	Boragor
8	Mutuk Chandra Malgope	64	M	Bhalukha
9	Kiritibhusan Ray	86	M	Jhatiboni

(2-3) crushed and mixed with fermented rice starch to form a paste. The whole mixture is given for seven days to treat problems of the placenta

b) Amenorrhoea and Black discharge:

Mode of preparation and Dose: Red Flower, *Ferula assa-foetida* (Multani hing), rhizome of red *Nymphaea pubescens* (shaluk) and *Sesamum indicum* (teel) all are mixed together by crushing. The paste is made into small tablets (0.3- 0.4cm) in diameter. One tablet is given in empty stomach for seven days to treat black discharge and amenorrhea.

Previous reports: Leaves, bud, flower, bark and root are used in astringent, urinary discharge, seminal weakness, piles and vaginal discharge, cough, aperients, emollient and fever (Kirtikar and Basu1933). Chopra *et al.* (1956) recorded that root and leaves are used in cough, emollient and as aperients. The leaves of this plant are used as a tonic for digestive system (Pattanayak *et al.*, 2015b). Mohapatra and Sahoo (2008) stated that white flower of the plant is used to cure white vaginal discharge.

Red flower of the plant (4-5) fried with desi- ghee is used to cure irregular periods.

7) *Lagenaria siceraria* (Molina) Standl. (Cucurbitaceae)

Vernacular name: Lau (Bengali,Santali)

Collection Number: Mandal 115.

Medicinal uses

a) Dysentery:

Mode of preparation and Dose: Generally 3- 4 flowers are crushed and mixed with candy sugar (mishri) and the mixture is made into a drink (*sarbot*). One glass is given immediately to treat dysentery.

b) Snake bite in pregnant woman:

Mode of preparation and Dose: Whole young plant just before climbing is mixed with two and a half pepper. The paste is given immediately in snake bite in pregnant woman to save the fetus in the womb.

Previous reports: Pulp is used as emetic and to cure burning sensation of feet. Leaves used in jaundice (Chopra *et al.*, 1956). Jain (2004) reported that leaf and root are used in liver

diseases. Roots are used in throat diseases (Roy *et al.* 2008). Tolossa *et al.* (2013) reported that the leaf is used to treat diarrhea and vomiting.

8) *Ocimum tenuiflorum* L. [Synonym: *Ocimum sanctum* L.] (Lamiaceae)

Vernacular name: Tulsi (Bengali, Santali)

Collection Number: Mandal 157.

Medicinal uses

a) Asthma:

Mode of preparation and Dose: Roots or leaves of the plant mixed with equal quantity of basak [*Adhatoda vasica* Nees.], $\frac{1}{4}$ th quantity of black pepper, (*Piper nigrum* L.), $\frac{1}{3}$ rd quantity of dried ginger (*Zingiber officinale* Rosc.), $\frac{1}{4}$ th quantity honey together is crushed and mixed with 100 gm of ghee. The whole mixture is tossed in a pan in medium flame for few minutes. The mixture is cooled and preserved in a can. One tea spoon is given two times daily to treat asthma until cure. If this formulation causes adverse reaction in the person then the quantity of dose reduced to half.

b) Leucorrhoea:

Mode of preparation and Dose: Root of the plant is mixed with $\frac{1}{4}$ th quantity of black pepper and made into small tablets (0.2–0.3 in diameter). It is given daily in empty stomach in the morning for 21 days to treat white discharge problems of women. Consumption of egg or egg products are avoided during this course of medicine.

Previous reports: Chopra *et al.* (1956) cited that leaves, seeds and root are used as expectorant, diaphoretic, catarrh, bronchitis, ear pain gastric disorder in children, hepatic infection, disorder of genitor-urinary system, malaria. The oil has antibacterial, insecticidal properties. Leaves, root and seed are used as diaphoretic, ringworm, coetaneous diseases,

earache, bronchitis, malaria, demulcent and disorders of genitor-urinary system (Annon, 1966). Hot water decoction and paste of the leaves are used in stomach disorder, inflammations, wounds, cuts (Namsa *et al.*, 2011). Leaves of the plant is used to treat cough and cold by tribal communities of Hazaribagh, Jharkhand (Maity *et al.*, 2015).

9) *Psidium guajava* L. (Myrtaceae)

Vernacular name: Peyara (Bengali, Santali).

Collection Number: Banerjee 117.

Medicinal uses

a) Dismenorrhoea, black coloration and bad odor of menstrual blood in women:

Mode of preparation and Dose: One inch bark of akro (*Ficus racemosa* L.), tip of *Cyanodon dactylon* (durba) (7 piece), Tulsi (*Ocimum tenuiflorum* L.) 4 piece, Atop rice ($\frac{1}{2}$ tea spoon) are crushed together to make a paste. The whole mixture is given in empty stomach in the morning for two days. Vegetative diet for the first day followed by normal non vegetarian eatables for next 2 days. In the last day, root of *Syzygium cumini* (L.) Skeels (jam) mixed with cow milk is given to eat in the morning.

b) Liver tonic, treatment of Jaundice:

Mode of preparation and Dose: A small quantity of bark is crushed to make a paste. 1-2 teaspoon of it is used to treat jaundice and used as a liver tonic.

Previous reports: Root bark is used as astringent, diarrhea of children. Fruit is used as laxative. Leaves are used in wounds, ulcers, cholera (Chopra *et al.*, 1956). Alonso-Castro *et al.* (2012) reported that the leaves are used as/in stomachache, vomiting, Herpes infection, diarrhea, dysentery, wounds, rash, gastritis, vermifuge, toothache. Maroyi (2013) reported

that leaves extract of this plant is used with *Citrus lemon* fruits and *Eucalyptus camaldulensis* leaves in cough, flu and fever. Infusion is given as drink as an enema for diarrhea.

10) *Tridax procumbens* L. (Asteraceae)

Vernacular name: Haldiful (Santali)

Collection Number: Banerjee 12.

Medicinal uses

a) Migraine:

Mode of preparation and Dose: 6-8 inch stem is taken, rubbed in the forehead. Alternatively, the stem is dipped in water and the water is used to treat migraine.

Previous reports: Leaves are used in bronchial catarrh, dysentery, diarrhea, antiseptic, insecticidal, parasiticidal, to check hemorrhage due to cuts, bruises and wounds (Annon.1976). According to Rao *et al.* (2006), leaves are used in rheumatism. Bapuji and Ratnam (2009) stated leaves are used in dysentery and diarrhea. Punjani and Pandey (2015) recorded that the fresh juice of the leaves is used to prevent pus formation and for fast healing of the cuts and wounds.

11) *Vernonia cinerea* Less. (Asteraceae)

Vernacular name: Cocseem (Bengali, Santali)

Collection Number: Mandal 123.

Medicinal uses

a) Tuberculosis:

Mode of preparation and Dose: 6-8 leaves are crushed and the juice is extracted. Two tea spoonful is administered twice daily in the morning and evening for 10 days to treat the disease.

Previous reports: Chopra *et al.* (1956) recorded that different plant parts are used in/

as diaphoretic, febrile condition, spasm of bladder, piles, dropsy, conjunctivitis, anti-helminthic. The plant is used to treat perspiration in febrile condition, incontinence of urine in children (Annon 1976). Leaf paste is applied in headache. Plant juice is used in fever (Sharma *et al.*, 2010).

12) *Zingiber officinale* Roscoe

(Zingiberaceae)

Vernacular name: Ada (Bengali, Santali).

Collection Number: Mandal 81.

Medicinal uses

a) Measles:

Mode of preparation and Dose: Juice of the rhizome (fresh) with small amount of methi (*Trigonella foenum – graecums*) is boiled and served like tea in lukewarm condition. Elder persons are given half cup of mixture and children and infants are given 2-4 tea spoons twice daily for two days in the morning and in the night.

b) Sprain:

Mode of preparation and Dose: Rhizome mixed with mustard oil (100gm), about 1 inch *Cinnamomum zeylanicum* Blume (*daruchini*) is applied externally in the affected area to treat sprain.

Previous reports: Rhizome decoction is used as/in stimulant, carminative, dyspepsia, flatulent, colic, abdominal pain (Chopra *et al.*, 1956). The plant is used in gastrointestinal disorder (Choudhary *et al.*, 2008). Swarnkar and Katewa (2008) recorded that rhizome is used as a rubefacient, to treat ulcer, abdominal pain and vomiting.

DISCUSSION

Documentation of traditional knowledge related to use of medicinal plants is done by

several authors in South Bengal. However, Panchet Soil Conservation Division has been partly explored. The people residing in this area are very poor and depend on the forest for their various needs as it is easily available and less expensive. Different plants and plant combinations are used for a wide spectrum of ailments. Roots and leaves of the plants are used mostly followed by rhizome, flower, fruit, bark or the whole plants. Some of the documented treatment schedules contain some new type of information, though the plants were noted before in some other ailments. As an example, the medicinal property of *Hibiscus rosa-sinensis* was earlier reported, but use of the plant flower in poly herbal composition appears new. These plants and plant combinations may be further studied for development of new medicine.

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