



ISSN 2320-3862
JMPS 2015; 3(5): 46-49
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Received: 21-06-2015
Accepted: 23-07-2015

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An ethnobotanical study on the medicinal plants used by Rajbanshis of Coochbehar district, West Bengal, India

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Abstract

Rajbanshis, the descendants of Koches, are living in the Terai and Brahmaputra valley of the eastern Himalaya for thousands of years. This area is a treasure house of biodiversity. Traditionally being settled agriculturist, people under this community have a vast array of knowledge on the uses of plants. They inherit the knowledge of using plants for the treatment of common diseases prevailed in this area. Local medicine men in their community called ojha or Mahan are expert in this form of treatment. However, present generation Rajbanshis are reluctant to their inherited knowledge and local resources of plants for therapeutic purposes. This warrants urgent documentation of their ethnomedicinal knowledge and conservation of the fast depleting plant resources. In this study, household survey was carried out to record ethnomedicinal knowledge of Rajbanshi people of Coochbehar district in West Bengal. This paper reports the uses of twenty-nine medicinal plants commonly used by them.

Keywords: Rajbanshis, ethnobotany, medicinal plants, Coochbehar, Biodiversity

1. Introduction

Globally, about 85% of the traditional medicines used for primary healthcare are derived from plants ^[1]. Ancient India was a treasure house for various alternative medicine systems like ayurveda, unani, siddha all of which were based on preparations and formulations made from various plants. India is so rich in biodiversity that it has been recognized as one of the twelve mega-biodiversity countries of the world. Terai and Brahmaputra valley of the Eastern Himalaya comes under the fringes of biodiversity hotspot. Previous ethnomedicinal study on this area reports uses of plants by various tribal and non-tribal ethnic groups ^[2]. Rajbanshi community has been living in this area for thousands of years. According to most historians and anthropologists Rajbanshis are the kiths and kin of Koch people who ruled a vast area of land for hundreds of years during 1100 BC to 320 AD under the name Kamrupa. The origin of Kamrupa has lost under antiquity. However, it has been accepted that the Kamrupa, also called Kamrup or Kamata kingdom was bounded in the west by the river *Karatoya* to east by the temple of goddess Dikkaravasini and confluence of the rivers Brahmaputra and Lakhya in the south forming a triangle ^[3]. In mythology this dynasty is also known as Pragjyotisha. The Koches who worshipped nature and followed Shamanistic religion were the forerunners of Rajbanshis. The name Rajbanshi was coined under the influence of Hindu caste system after AD 1515. A mix of culture of worshipping nature and following rituals of Hinduism is prevailed among Rajbanshis. It is conjectured that Rajbanshis belong to a mixed race of Austroasian or Dravidian and Mongolian. According to 1961 Census, in West Bengal Rajbanshis are present all the districts except Purulia. By the 2001 census, the Rajbanshi constitute 18.4 percent of total scheduled caste populations.

Rajbanshis are traditionally settled agriculturists. They cleared the vast forest area of Brahmaputra basin to make it habitable and ploughable. At the same time their curiosity and love for nature made them aware about the importance of plants. Rajbanshi medicine men, called ojha or mahan, know the use a number of plant species for the preparation of herbal medicines which they use for the treatment of various diseases effectively. However, with the passage of time and development of modern allopathic medicines new generation Rajbanshis are reluctant of their vast natural resources and inherited knowledge. This has resulted in fast disappearance of their rich traditional knowledge system. So there is an urgent need to make an inventory and documentation of their ethnobotanical knowledge for the treatment of common diseases.

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2. Materials and Method

2.1. Study area

The area under the present study includes the Terai and Duars of the Northern part of West Bengal covering the districts of Coochbehar. Coochbehar lies between 25 ° 57' 47" and 26 ° 36' 20" N latitude and between 89 ° 54' 35" to 88 ° 47' 44" E longitude. The total area of the district is 3387 sq km.

2.2. Collection of data

Household surveys were conducted using questionnaire and interviews with locals to study the ethnobotanical knowledge of this community during 2008 and 2010. During this process it was found that they possess a vast knowledge on the use of plants for therapeutic uses. Interviewees were grouped into four classes on the basis of their ages (10-20, 20-40, 40-60 and >60 years of age). Local medicine men called ojha or mahan were interviewed to document their expertise. The medicinal uses of the plants for the treatment of common ailments were documented by group discussion also. Information on the

seasonal availability of the medicinal plants in the locality and their vernacular names was gathered to collect specimens for the preparation of herbarium sheets. The herbarium specimens were identified with the help of different floras including Bengal plants, Flora of British India, and matching with the herbarium specimens of CNH, CAL.

3. Result and Discussion

In my survey it was found that both elderly men and women above 60 years of age had more traditional knowledge about the therapeutic uses of local plants than any other age group. This may be attributed by the fact that during their childhood days plants have been used to treat diseases at home in the absence of modern medical facilities.

The present ethnobotanical survey recorded twenty-nine plant specimens under twenty-eight genera and twenty-one families used by the Rajbanshis for various therapeutic purposes (Table 1).

Table 1: Medicinal plants used by the Rajbanshi Community for common diseases

Sr.No	Scientific name (Family)	Local name	Habit	Parts used	Medicinal Uses
Dicotyledons					
1	<i>Adhatoda vasica</i> Nees. (Acanthaceae)	Basak	Shrub	Leaves	Leaf extract used to cure cough and cold, bronchitis
2	<i>Andrographis paniculata</i> (Burm. f.) Wall. Ex Nees. (Acanthaceae)	Kalpanath/ Kalamegh	Herb	Leaves	Extract of leaves or dried leaf paste used in indigestion
3	<i>Bombax ceiba</i> L. (Bombacaceae)	Shimuli	Tree	Spine,	Spin used like sandal to cure pimples
4	<i>Calotropis procera</i> (Willd.) Dryand ex Ait. (Asclepiadaceae)	Akanda	Shrub	leaves	Leaf warmed under slow heat and applied to relieve arthritic pain and swelling
5	<i>Centella asiatica</i> L. (Apiaceae)	Bara mani-muni	Herb	Whole plants	Plant Extract is used to cure amoebic dysentery
6	<i>Chorchorus olitorius</i> L. (Tiliaceae)	Pata	Herb	Leaves	Decoction from dried leaves used as blood purifier
7	<i>Clerodendrum indicum</i> (L.) Kuntze (Verbenaceae)	Bhauti	Under-shrub	Leaves	Leaf paste used in diabetes
8	<i>Croton banplandianum</i> Baill. (Euphorbiaceae)	Ban-dakait	Herb	Leaves	Paste used to stop bleeding
9	<i>Drymeria diandra</i> Blume (Caryophyllaceae)	Hargila	Herb	Whole plants	Extract used to cure peptic ulcers, headache
10	<i>Eclipta prostrata</i> L. (Asteraceae)	Kala keshrai	Herb	Leaves	To remove burning spot
11	<i>Glycosmis pentaphylla</i> Corr. (Rutaceae)	Matkila	Shrub	Stem, Leaves	Tender stem used as natural toothbrush, leaf paste used in veterinary diseases
12	<i>Jatropha gossypifolia</i> L. (Euphorbiaceae)	Bherenda	Shrub	Latex	Younger stem used as natural toothbrush to cure toothache
13	<i>Leucas aspera</i> (Willd.) Spreng. (Lamiaceae)	Dhulpi	Herb	Young plants, Leaves	Extract of leaves in Gynaecological problem
14	<i>Moringa olifera</i> Lam. (Moringaceae)	Sajina	Tree	Leaves	Whole leaves cooked and eaten in diabetes and high blood pressure
15	<i>Psidium guajava</i> L. (Myrtaceae)	Tam	Tree	Leaves	Paste used to cure toothache
16	<i>Phylla nodiflora</i> (L.) Grene (Verbenaceae)	Ban-okhra	Herb	Leaves	Extract used to cure common cold
17	<i>Phyllanthus niruri</i> L. (Euphorbiaceae)	Ban amlaki	Herb	Leaves	Used in liver diseases
18	<i>Solanum nigrum</i> L. (Solanaceae)	Adh Bathua	Herb	Leaves	Leaf paste applied on the forehead to relieve headache
19	<i>Syzigium cumini</i> L. (Myrtaceae)	Jamun	Tree	Dried seeds	Decoction from ground seeds used to treat diabetes
20	<i>Tabernaemontana divaricata</i> R.Br. ex Roem & Schult (Oleaceae)	Sada phul	Shrub	Flower	Extract used to cure ear-ache
21	<i>Tagetes patula</i> L. (Asteraceae)	Genda phul	Shrub	leaves	Paste used to stop bleeding
22	<i>Vitex negundo</i> L. (Verbenaceae)	Nishinda	Tree	Leaves	Leaf used as pesticide
Monocotyledons					
23	<i>Colocasia fallax</i> Schott. (Araceae)	Kala kachu	Herb	Leaf with long petiole	Cooked and eaten in anaemia
24	<i>Costus speciosus</i> (Koenig) Smith (Zingiberaceae)	Kewa	Herb	Rhizome	Extract used to cure intestinal worms, asthma, bronchitis
25	<i>Curcuma amada</i> Roxb. (Zingiberaceae)	Kachulote	Herb	rhizome	Used in amoebic dysentery
26	<i>Curcuma longa</i> L. (Zingiberaceae)	Haldi	Herb	Rhizome, Leaves	Raw rhizome used as blood purifier, Leaf Extract used to treat amoebic dysentery
27	<i>Cynodon dactylon</i> Pers. (Poaceae)	Durbaghas	Herb	Whole plants without roots	Extract used to cure leucorrhoea
28	<i>Musa paradisiaca</i> L. (Musaceae)	Athia kala	Herb	Ripened fruit	Ripened fruit used in stomach trouble
Pteridophyte					
29	<i>Marsilea quadrifolia</i> L. (Marsileaceae)	Amrul	Herb	leaves	Diuretic

Of these twenty-nine medicinal plants, all except one were phanerogams. The majority of the phanerogams were dicotyledonous plants while only six were monocotyledons. According to the habits of the plants used by Rajbanshis, five plants were trees, six shrubs, one under-shrub and rest seventeen herbs. The predominant families under dicotyledonous plants were Verbenaceae and Euphorbiaceae each containing three medicinal plant species and Zingiberaceae was the predominant monocotyledonous genus containing three species under two genera. Plants, under the family Verbenaceae, viz. *Clerodendrum indicum* (L.) Kuntze, *Phylla nodiflora* (L.) Grene and *Vitex negundo* L. were found to be used for the treatment of diabetes, common cold and arthritic swelling and pain. This finding is supported by the fact that diterpenoids extracted from the roots of *Clerodendrum eriophyllum* Gurke have antimicrobial and antiparasitic activity [4]. Leaves, stem, root, bark and even the whole plant of *C. indicum* is used for the treatment of gastric diseases, respiratory diseases, skin diseases, liver diseases, tooth ache and autoimmune diseases by tribal communities in Bangladesh [5]. Presence of alkaloid nishindine, flavonoid like flavones (luteoline-7-glucosides), glycosides and essential oils in the leaves of *Vitex negundo* confer various therapeutic uses of this tree [6]. Other than anti-microbial activity, *Phylla nodiflora* has been found to possess hepatoprotective, antioxidant, anti-diuretic, anti-inflammatory, antiurolithiatic and antidiabetic activity [7]. Plants under Euphorbiaceae used by Rajbanshis included *Croton banplandianum* Baill, *Jatropha gossypifolia* and *Phyllanthus niruri*. The family Euphorbiaceae provides varied ethnomedicinal properties [8-11]. Plants belonging to the family Euphorbiaceae have been reported to be used in the treatment of ailments such as respiratory infections, venereal diseases, toothache, rheumatism, cough, ulcer and wounds [12]. Other than anticoagulant activity, *Croton banplandianum* is used against scabies, sores and ringworm. Seed oil from *Jatropha curcas* is used for the treatment of leucoderma, sores, pimples and eczema by the tribals of Bahraich, Uttar Pradesh [13]. *Phyllanthus niruri* has been reported having hypoglycaemic, hypotensive, diuretic, anti-inflammatory and antioxidative properties [14].

Costus speciosus is used against intestinal and respiratory diseases by Rajbanshis. Diosgenin, a steroidal sapogenin, extracted from this plant is used for the preparation of sex hormones, cortisone and contraceptives [15]. Extracts of *Costus* rhizome and leaves possess antimicrobial, antioxidant, hypoglycaemic, anti-inflammatory activity [16]. Leaves and rhizome extract of *Curcuma amada* have antioxidative, antibacterial, antifungal, anti-inflammatory, antiallergic and anticancer properties [17]. Turmeric is attached with Indian culture from time immemorial and its medicinal uses are innumerable [18].

Plant parts used as medicine by Rajbanshis included whole plant, spine, young root, leaves, stem, latex, dried seeds, flowers, rhizome and ripened fruits. Leaves were the most preferable plant parts used to treat various ailments whose mode of application also varied from drinking extract of leaves, applying leaf extract on affected area, applying leaf paste, dry heating with leaves to simply cooking as vegetables. It has been found that they use the rhizome or the whole plant of only six plants. As the process kills the whole plant, this mode of application is detrimental for biodiversity. On the other hand use of aerial plant parts like leaves, flowers, fruits or seed which may not affect the plant body lethally may be regarded as the conservationist nature of this community. Rajbanshis collect some of these plants as weeds from wild habitats as well as from agricultural fields. But it has been

found that culturally they cultivate most of the plants in their outskirts of houses as well as a few in agricultural fields. So this indirectly conserves those plants helping in amelioration of biodiversity loss.

But recent changes in the mind setup, establishment of allopathic medicine shops in their villages, easy availability of allopathic medicines over the counter without doctor's prescription and socio-economic changes have triggered fast deterioration of these traditional healing practices. Moreover with the increase of population pressure and conversion of land for the purpose of agriculture and residence, rich biodiversity of this area has lost. So the newer generations are not familiar with the plants and their therapeutic applications.

4. Conclusion

The present study focused on the need of proper documentation of the medicinal plants used by the Rajbanshi community for common diseases prevailing at this area. However, present generation are least interested for traditional medicines. Proper documentation and conservation of the plants used by Rajbanshi community is necessary which should play a great role in ayurveda, homoeopathy and in modern medicine.

5. Acknowledgement

The author expresses her deep sense of gratitude to the persons of Rajbanshi community for sharing their inherited knowledge for the present documentation.

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