International Journal of Experimental Research and Review (IJERR)

ISSN: 2455-4855 (Online) ***Original Article***
Received: 19th March, 2021; **Accepted:** 20th April, 2021; **Published:** 30th April, 2021
DOI: https://doi.org/10.52756/ijerr.2021.v24.004

Some medicinal plants with anti -fertility potential used by the tribal people of the District Cooch Behar, West Bengal, India

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Abstract

The increase in population is becoming a comprehensive dilemma, causing much pressure alternative medicine for anti-fertility action. Ayurveda and other Indian literature mention the use of plants in various human ailments. India has about more than 45000 plant species and among them several thousand are claimed to possess medicinal properties. Researchers conducted in the last few decades on the plants mentioned in ancient literature or used traditionally for anti-fertility action. This review reveals that some plants and their part used having anti-fertility action, which are helpful for researcher to develop new herbal anti-fertility formulations. In the recent years, interest in drugs of plant origin has been progressively increased. The Koch Rajbangshi people use various wild and cultivated plants as medicine for curing different diseases. They completely or partially depend upon these plants for curing various diseases. The plants are mostly used as first aid treatment in most of the diseases. In almost every village there is a medical man who generally knows the traditional uses of the plants. There are some ritual believes also associated with these medicinal plants or ethnomedicines. A good number of these plants are also included in their daily diet. Above all, the plants have also some market value, thus playing an important socio-economic role among the people of the various tribal people. With the use of modern day medical techniques the traditional health care system is now at the verge of extinction. In the present work, the Researcher tried to document the plants used for the medicinal purposes in the, District Cooch Behar or Koch Bihar of the North Bengal region. To create a database of traditional knowledge and use pattern of some plants with infertility potential by Koch or Rajbangshi people in the region all the plants with its uses are documented in this study.

Keywords: Ailments, anti-fertility, ethnomedicine, Rajbanshi, Koch.

Introduction

It is reported that traditional healers use near about 2500 plant species and 100 species of plants which serve as regular sources of medicine (Pei, 2001). World Health Organization has stated that 80% of the world's population depends on traditional medicine for its primary health care and has become indispensable for its survival (Hiremath et al., 2013). Therefore medicinal plants constitute precious resources for

mankind. During the past century, there has been a rapid extension of allopathic medicinal treatment in India but still now the use of natural products as medicine, especially plant products are widely used among various tribal people particularly in the remote areas of West Bengal with few health facilities. About 70% of Indian population inhabits in rural areas and many of them reside in the vicinity of forest and use various plant parts as food, medicines, and in many other purposes for their daily livelihood. Indian people are using medicinal plants from prehistoric period. Indigenous healing practices have been culturally accepted during phases of human culture and environmental evolution. Medicinal plants have a long-standing history in many indigenous communities, and are an integral part for treating various diseases, particularly to cure daily ailments and this practice of traditional medicine is based on hundreds of years of belief and observations. Almost every section of Indian population use plants as medicine and altogether about 7500 species of plants are being used by several ethnic communities. Particularly, tribal people collect and preserve locally available wild and cultivated plant species and practice herbal medicine to treat a variety of diseases and disorders. With enormously diversified ethnic groups and rich biological resources, India represents one of the great emporia of ethno botanical wealth (Namahata and Mukherjee, 1989). In developing countries, there is an increasing attempt to incorporate traditional medicines, especially herbal preparations in the local health care systems and many modern researchers are involved today to explore the huge potential of ethno botanical knowledge for treating various diseases (Mondal et al., 2012). However, the ethno medicinal plants are under threat due to deforestation, overgrazing and their reckless utilization. So, it indicates the urgent need of their conservation. Conservation of biological resources as well as their sustainable use is important in preservation of traditional knowledge (Mallick et al., 2012). In spite of researches about use and status of medicinal plants in various parts of India, no such scientific documentation has been made in Coochbehar District of West Bengal so far. So we designed this study to survey the use of medicinal plants among tribal people of Cooch Behar District, as well as to check the recent status of the medicinal plants in this area. Several books have been published regarding Tribal medicines in the last two decades representing almost all regions of India from North (Sood et al., 2001) to south (Rama Rao and Henry, 1966), from west (Pandey et al., 1998) to east (Saklani and Jain, 1994) and on many other parts of northern (Maheswari et al., 1981), central (Varghese and Hembrom, 2000), and Peninsular India (Vedavathy et al., 1977).

Koch Rajbangshi or Rajbangshi is one of the most ancient tribe of Assam. They belong to the Mongoloid race and are very closely allied to Kacharies and Garos (Gait, 1906; Barua and Phukan, 1999). Koches group of people belong to Kachari and other tribes which converted themselves to Hinduism; while Rajbangshi literally means the 'Royal community'. The term Koch and Rajbangshi are both synonymous and indicate the tribe which was once dominated North Bengal, Goalpara and North side of Brahmaputra River (Gait, 1906). They are distributed all over Assam and North Bengal, eastern part of Bihar, Meghalaya, Eastern Nepal and in some parts of Bangladesh. They are the most dominant tribe in Bongaigaon District of Assam which is the part of old Bijni Raj Estate (Choudhury, 1969).

Aims of the study

In recent years, uncontrolled exploitation by Multinationals has resulted in the loss of rich biodiversity of India, which has an immense wealth of about 45,000 species of wild plants of which 7500 species are used for medicinal purposes. The tribal people are the real custodian of medicinal plants. The knowledge of drugs goes back to prehistoric times. In general the tribes show many similarities in regard to medicine, but the actual agents employed differ with the tribes and localities, as well as with individual healers. Magic, prayers, songs, exhortation, suggestion and mechanical processes are employed only by the medicine-men; other specific remedies and simple manipulations are of common knowledge in a given locality. There are a number of indigenous practices, which in corporate considerable amount of practical knowledge, derived over centuries of experience in the use of herbs and other substances to cure varieties of diseases. The tribal come to know the efficacy of herbs through uses. Use of herbs is guided by this randomly or formally gained experience. The knowledge is often passed from one generation to the next. The choice of herbs and treatment depends according to the availability of plants in the neighbouring areas. In recent times, focus on plant research has increased all over the world and a large body of evidence has collected to show immense potential of medicinal plants used in various traditional systems. This century has witnessed many great achievements in the field of medicine.

There are a number of advantages associated with using herbal medicines.

Advantages

i) Reduced risk of side effects
ii) Effectives with chronic conditions
iii) Lower cost
iv) Widespread availability

Disadvantages

i) Inappropriate for many conditions
ii) Lack of dosage instructions
iii) Poison risk associated with wild herbs
iv) Lack of regulation

Methodology

The knowledge about medicinal plants and uses of plants in treatment among the tribal groups are often limited to a few number of people in the community who are recognised as medicine-men or kaviraj or vaidya. These persons are generally well known to the local area as well as far away. In each locality, there are several recognised medicine-men. Another type of people, who generally believes on God and evil spirit, are known as Ojha. They treat the patients both with plant medicines and their spiritual power. Very often the people are involved in the act of naturalization of the effect of evil power and witch craft.

At first the medicine men and the community members who are knowledgeable in medicinal plant identification and usage of an area were identified by interrogation and were also requested to help in collecting data. The tribal people are usually very conservative to disclose their knowledge about the plant medicines. They explained their power to treat diseases and about their patients but they do not about the name of plants. The tribal people believe that the efficacy of the therapy is lost if they disclose it to the strangers, who have no faith in nature and their medicines. They have fear also to create new competition. However, after realizing the purpose of the study, most of the medicine men cooperated with us.

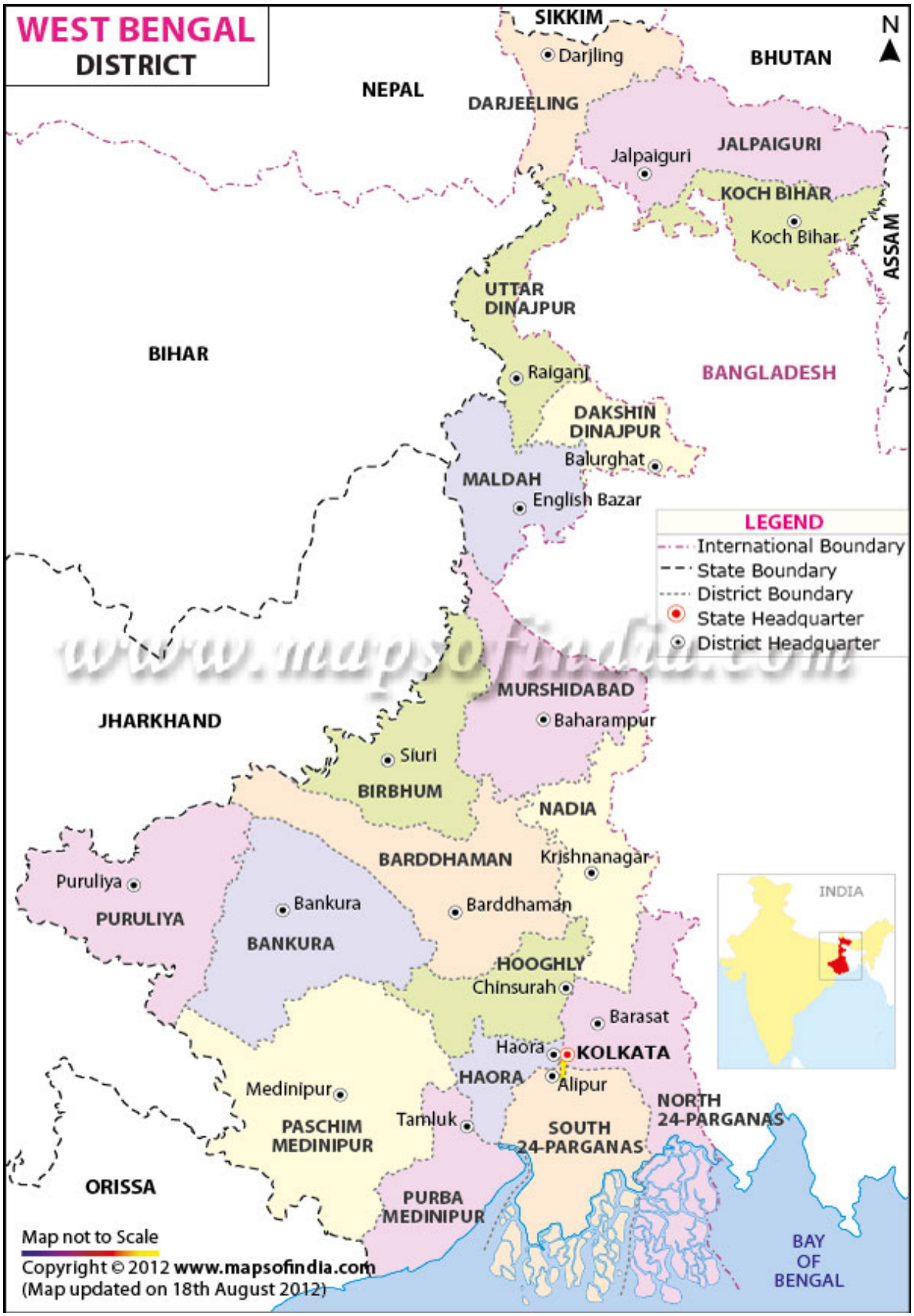

Figure 1. Map of West Bengal (showing Coochbehar or Kochbihar District).

The effectiveness of the medicines was also asked to the patients present there. The collected plants were preserved in a herbarium sheet, identification of the plants was confirmed by the Botanical Survey Of India, Kolkata and Prof. G.G Maity, Department of Botany, University of Kalyani, West Bengal. Identified plants were described with the help of Bengal Plants (Prain, 1996), Herbal options (Chatterjee, 2003), Tribal medicine (Pal and Jain, 1998). List of plants in controlling different diseases by the tribal medicine-men of the District Cooch Behar or Koch Bihar is presented in the table 1 of some medicines prepared by various medicine men are described here in separate headings.

Geographical aspects of the Coochbehar or Kochbihar district

Habitation

The homelands of Koch Rajbongshi people comprises their ancient Kingdom, Kamatapur, Kochraj bongshi Kingdom, Kamarupa Kingdom they inhabit in entire Assam, Total Parts of the present West Bengal, Nepal and Bangladesh. They are the majority in Assam and while comparing the North Bengal, Koch Rajbongshi community have majority of the population. Koch Rajbongshi people stay very close to nature. It is a Tradition for Koch Rajbonshi Men to go hunting in the wild, they usually go in a Group for Hunting. Rajbonshi people have their ancient tradition of treatment which is not very well known to the modern medicine world, the significant medicine that they use is not known to even Ayurveda Medicine Scientists. The tradition of this medicine is passed orally from one generation to another and not shared to the foreign element, because it is prohibited during the education process from the ancestor, the knowledge can be only given from one generation to another within the community.

Etymology

The name Coochbehar is derived from the name of the Koch or Rajbongshi tribes indigenous to this region for many centuries. The word Behar is derived from Sanskrit: vihara. The princely state known during British rule as Coochbehar had been part of the Kamarupa Kingdom from the 4th century to the 12^{th} century. In the 12th century, the area became a part of the Kamata Kingdom, first ruled by the Khen dynasty from their capital at Kamatapur. The Khens were an indigenous tribe, and they ruled till about 1498 CE, when they fell to Alauddin Hussain Shah, the independent Pathan Sultan of Gour. The new invaders fought with the local Bhuyan chieftains and the Ahom king Suhungmung and lost control of the region. During this time, the Koch tribe became very powerful and proclaimed itself Kamateshwar (Lord of Kamata) and established the Koch Dynasty**.**

Geography

Coochbehar is situated in the foothills of Eastern Himalayas**,** located at 26°22′N and 89°29′E in the north of West Bengal. The Torsa river flows by the western side of town. Heavy rains in the area often cause strong river currents and flooding. The turbulent water carries huge amounts of sand, silt, and pebbles, which have an adverse effect on crop production as well as on the hydrology of the region. Alluvial deposits from the soil, which is acidic. Soil depth varies from 15 cm to 50 cm, superimposed on a bed of sand. The soil has low levels of nitrogen with moderate levels of potassium and phosphorus. Deficiencies of boron, zinc, calcium, magnesium, and sulphur are high.

Table 1. List of plants prescribed by the tribal medicine-men of the District Cooch Behar for the treatment of various types of diseases.

Sl. No.	Scientific name of the species	Local name of the species	Family of the species	Parts used of the species	Prescription
1	*Leucas aspera* (Willd.) Spreng.	Dhulpi	Lamiaceae	Herb Young plants	Leaves extract of leaves in gynaecological problem
2	*Croton banplandianum* Baill.	Ban dakait	Euphorbiaceae	Herb Leaves	Herb leaves paste used to stop bleeding
3	*Cynodon dactylon* Pers.	Durbaghas	(Poaceae)	Herb Whole plants	Roots extract used to cure leucorrhoea
4	*Jatropha gossypifolia* L.	Varenda	Euphorbea-ceae	Stems and leaves	Stem and leaves extract used in treatment of male infertility
5	*Piper betle* L.	Pan	Piperaceae	Leaves	2 to 3 teaspoonful of leaves extract is used as anti-fertility agent of female, continued for 15 days, once in every morning
6	*Abormaaug ustaL.* f	Ulotkambal	Sterculiaceae	Leaves	2 teaspoonful of leaves extract mixed with water and taken two times daily for 1-2 month for the treatment of irregular menstruation, and painful menstruation.
7	*Heliotropiumindicu m* L.	Hatisur	Boraginaceae	Leaves and inflorescence	Leaves and inflo-rescence of the plant is applicable as remedy of indigestion and remedy of male infertility.
8	*Saracaasoca* (Roxb.) de Wilde.	Ashoke	Caesalpinia-ceae	Leaves and bark	Paste of leaves and bark, 2 teaspoonful mixed with water taken twice daily continued for 2 month, for the treatment of irregular menstruation, and in uterine disorder.
9	*Alstonia scholar* (L.) R.Br	Chhatim	Apocynaceae	Leaves	Leaves decoction enhance male fertility.

					one tea-spoonful decoction taken for 1 month, once daily.
10	*Marsilea quadrifolia* L.	Susni	Marsileaceae	Seeds, flowers	Dust of leaves with water two teaspoon full daily at tea time is effective for the treatment of female anti fertility.
11	*Anthocephalus cadamba* Miq.	Kadamba	Rubiaceae	Leaves	Leaves paste with honey enhance male fertility. one tea-spoonful decoction taken for 1 month, once daily.
12	*Areca catechu* Linn.	Supari	Arecaceae	Fruit	Fruits soaked in water for decomposition. The decomposed fruits effective as female infertility agent.
13	*Azadirachta indica* A. Juss.	Neem	Meliaceae	Leaves	Leaves paste used as male fertility reducer.
14	*Bambusa arundinacea* (Retz.) Willd.	Bans	Poaceae	Stem	Paste of soft stem used as male anti fertility component, once daily for two months.
15	*Brassica juncea* Coss	Rai	Brassicaceae	Oil	Female anti fertility agent. Used regularly for one moth two table spoon daily after breakfast.
16	*Cannabis sativa* Linn.	Bhang	Moraceae	Leaves	Used as both male and female anti fertility medicine. Leaves paste with honey prescribed for 2 to 3 months regularly 2 tablespoon.
17	*Carica papaya* Linn.	Papaya	Caricaceae	Leaves	Leaves paste with talan prescribed for daily once in empty stomach.
18	*Cuminum cyminum* Linn.	Jira	Apiaceae	Fruit	Jira soaked in water and a cup of soaked water is prescribed for male anti fertility treatment.

The town of Cooch Behar and its surrounding regions face deforestation due to increasing demand for fuel and timber, as well as air pollution from increasing vehicular traffic. The local flora include palms, bamboos, creepers, ferns, orchids, aquatic plants, fungi, timber, grass, vegetables, and fruit trees. Migratory birds, along with many local species, are found in the city, especially around the Sagardighi and other water bodied.

Agriculture

The agricultural area of Coochbehar is 2530.63 square kilometres. The dominant agricultural products of Coochbehar district are jute and tobacco. Paddy rice is also grown before and after the rainy season. Common plantation crop are coconut and black pepper. Vegetable, mustard plant, and potato cultivation are increasing. In order to support agriculture, special programs have been taken for the production of sunflowers, maize and groundnuts. Revolutionary methods are being used in Boro paddy and potato cultivation. Only 33% of the potentially cultivable land is developed for irrigation. In Kharif, the area of production of vegetables and other crops is much less. Farming is a major source of livelihood for the nearby rural populace, and it supplies the town with fruits and vegetables. Poorer sections of this semi-rural society are involved in transport, basic agriculture, small shops and manual labour in construction.

Culture

Popular festivals in Coochbehar include, Durga Puja in October, along with Ras Purnima, when a big fair is organised in the town near the famous Madan Mohan Temple. Coochbehar Rasmela is the oldest in the North Bengal region.

Figure 2 & 3. Tribal medicinemen are preparing herbal medicines at their house of Baraghoria, Mathabhanga, Coochbehar.

Other major festivals celebrated in the region include Pohela Baishakh (Bengali New year), Rathayatra, Dolyatra or Basanta - Utsab, Diwali, Poush parbon (festival of Poush), Christmas, Eid-ul-Fitr and Eid ul-Adha. Coochbehar has a mixture of cultures, similar to those of West Bengal and Bangladesh. Kolkata. The local dialect is more closer to that of East Bengal and a mix of Assamese and Rajbangsi language. The Madan Mohan Temple, Bara Debi Bari and Rajmata Temple are centres of religious and cultural importance.

Discussion

The present study documents the significance uses of many plants in this region. The information generated from the

present study will help in creating mass awareness regarding the need for conservation of such plants and also in the promotion of ethno-medico-botany knowledge within the region .The practices and methods employed for plant collections by the local herbalists are not scientific based and hence botanical collection techniques should be employed to aid protection and conservation of these medicinal resources. Thus there is a need for sustainable collection and propagation of the medicinal plants for future use. Traditional ecological knowledge is of significance from a conservation perspective and an attribute of societies with community in resource use.

A further group of allopathic drugs addresses either the symptoms of the disease without curing the disease or have serious side-effects. As a result scientific interest is re-focusing on indigenous use of medicinal plants, for experience has shown that scientific studies based on indigenous uses can be an effective way towards rapid discovery of some compounds with therapeutic potential. It is found from the result that the use of a number of medicinal plants have been validated by scientific studies be conducted on the plants for which such studies are absent. Scientific studies need to be conducted along with serious efforts for conservation of medicinal plants. Coochbehar is a district with high population density. The forests are fast depleting due to human activities, the traditional resources like medicinal plants are also rapidly becoming endangered. More concerted effort needs to be made to conserve and cultivate medicinal plant species and to conduct scientific studies on such plants, it may represent the most promising source of discovery of important compounds and development of newer drugs. Usually tribal people stick to their own cultural and traditions. Ojha, kaviraj, healer and old people of the villages have a good knowledge of plants, which are useful to cure various types of diseases of stomach, skin, chest, urinogenital disorders and also used as anti fertility agent etc. most of the tribal medicines are used with various products and other ingredients prevalent among the tribal communities. These plants are available in different areas of the District.

This ethnomedicinal information collected from different medicine-men of the Coochbehar district may help to the development of new or alternative drug in relation to anti-fertility medicine. From the results of the present study regarding the traditional knowledge collected from various tribal medicine-men of the district Coochbehar, may help to develop some new medicines for the control of stress activity and other purposes. This type of study will help to open a new avenue for the betterment of the human society also.

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