

Original Research Article

Medicinal Plants Used for Treating Reproductive Health Problems in Tribal Communities of Jhargram, West Bengal

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Abstract: Traditional remedies play a great role in the cultural and religious life of the different tribes. According to WHO, till today 80% health problems are treated in rural and tribal community by traditional medicines. Sexual and reproductive health problems account for 18% of the total global burden of disease and 32% of the burden among women of reproductive age. This study was carried out in order to determine how the naturally available local plants are used for the treatment of reproductive and sexual disorder among the tribal people of villages located in the district of Jhargram of West Bengal. During the field trips, the information was collected through interviews, including various data obtained from local healers and traditional medicine men, herbalists, shepherds, patients and elderly persons. A total of 23 plants belonging to 19 families were documented for their therapeutic use. Further analysis on the families of medicinal plants has shown that family Malvaceae are represented by the highest number of species followed by the Moraceae. Also, it was determined that reproductive and sexual disorders for which the folk medicinal plants parts are used as follows-leaves (27%), followed by roots (23%), barks (19%) and seed (15%) etc. This survey illuminates that the tribal people still actively use plants for the treatment of reproductive disorder. Therefore the documentation of plants used as traditional medicines in tribal community is needed so that this veritable treasure of knowledge can be preserved, shared and exploited sustainably.

Key words: Herbalist, Reproductive System, Sexual disorders, Tribal, Therapeutics

Introduction

Traditional remedies play a great role in the cultural and religious life of the different tribes. Exploitation of natural sources for the development of traditional medicine preparations and also of bioactive molecules and therapeutic agents has acquired a time-tested reputation (Paterson and Anderson 2005, Newman and Cragg 2007). According to WHO- till today 80% health problems are treated in rural and tribal community by traditional medicines (WHO 1991 WHO 2007) Of the various natural sources examined, plants proved to have high potential and yielded maximum number of commercially viable therapeutic agents. (Koehn and Carter.

2005, Chin *et al.* 2006) Medicinal plants have a long history of use and are globally safer than synthetic drugs (Sefton 2000). They are a reliable source for drug discovery (Kaingu *et al.* 2011). In recent years there has been a resurgence of interest in traditional medical practices and there have been initiatives by several groups to promote the incorporation of indigenous medicine. Medicinal plant use has also been documented extensively in India and China. James Duke, a well-known ethnobotanist who works for the USDA, wrote: "Like China, India is one of those countries where more citizens rely on traditional medicinal plants than on modern synthetics". He

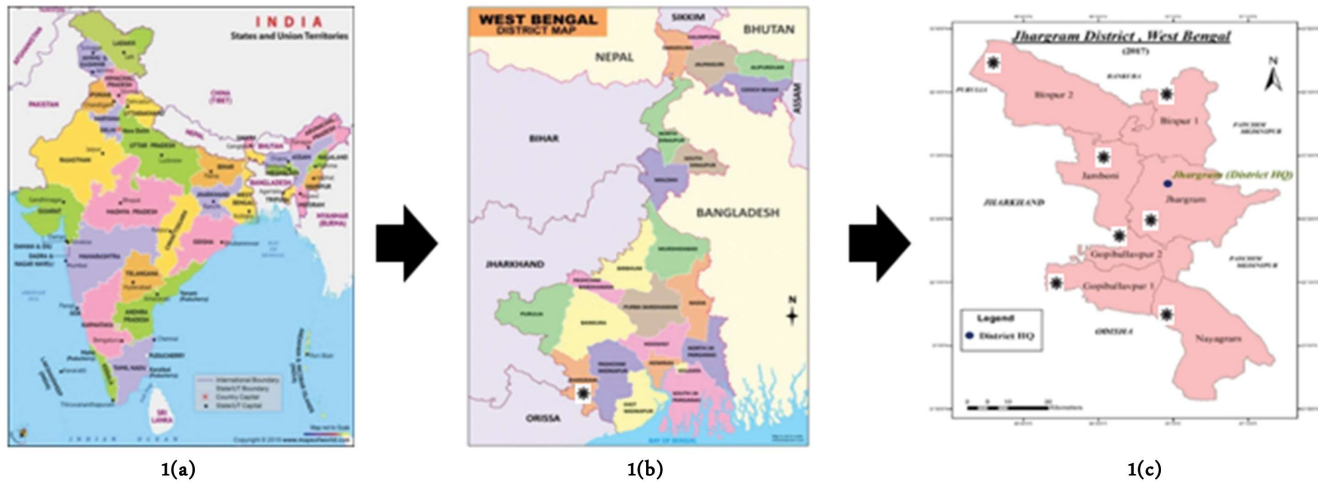


Fig. 1. 1(a): India Map; 1(b): Map of West Bengal; 1(c): Location of Study area in Jhargram district.

estimates that there are thousands of medicinal plants used by millions of indigenous people in India (Duke 1996).

Reproductive system and sexual disorder deals with the problem associated with male and female reproductive system and any diseases associated with the male reproductive organs like the penis, scrotum and testes and female reproductive organs like ovaries, fallopian tubes, uterus, cervix, vagina, and vulva. The most common reproductive problem for male is like erectile dysfunction, premature ejaculation, less sperm count etc. The common female reproductive problems are infertility, menstrual problem, menopause ovarian cyst, pelvic inflammatory disease etc.

Sexual and reproductive health problems account for 18% of the total global burden of disease and 32% of the burden among women of reproductive age (Chin *et al.* 2006). Since the malfunctioning of these organs in reproduction causes infertility and should be treated as soon as possible, particularly if possible then in childhood. Such disorders may be caused by infections, physical damage, or hormonal imbalances. Different plant species have been studied as well as tested for effective management of the reproductive disorders like *Apium graveolens* (Celery) is used to treat effectively in fertility and reproductive system (Kooti *et al.* 2014) problems. *Danae racemosa* extract (Khaki *et al.* 2013) and *Citrullus vulgaris* (Watermelon Seed Extract) (Khaki *et al.* 2013) are used to cure different diseases in female reproductive system. Studies

have shown that the plant *Alpinia galanga* has positive impact for increasing the number of spermatozoa and also increased level of testosterone production (Mazaheri *et al.* 2014). *Nigella sativa* showed increase in testosterone production (Mclachlan *et al.* 2002). *Withania somnifera* member of Solanaceae family (Singh *et al.* 2012) *Ocimum gratissimum* (Pande and Pathak 2009) *Valeriana jatamansi* is the member of Valerianaceae family (Pande and Pathak 2009) are used to cure Sexual dysfunction.

Materials and methods

A wide variety of medicinal plants are used in Indian traditional medicine systems to treat sexual and reproductive disorders. This study aimed to identify and determine the native medicinal plants used traditionally by different rural tribal communities such as Santals, Sabar, Mundas etc in the Jhargram district of West Bengal.

Study area

This study was carried out in eight community development blocks like Binpur-I, Binpur-II, Jamboni, Jhargram, Gopiballavpur-I, Gopiballavpur-II, Nayagram and Sankrail in Jhargram district (Figure-1). The altitude of the study area ranges from 80 to 100 meters above sea level. The total survey area comprised 525 sq km. The average annual rainfall of Jhargram district is about 1400 mm. The rainy season spreads over June to September due to south-west monsoon and



Fig. 2. Data collection from the ethnic People.

highest rainfall occurs in July and August. The maximum temperature during project was 43°C and minimum was 19°C. The soil is red, laterite, shallow depth gravels, low in organic matter, nitrogen and high in phosphorus and potassium. The climate in this region is sub-humid and dry. This study was conducted from Jun 2019 to Aug 2020. Most of the inhabitants belonged to the various tribal community who relied on forestry and agriculture.

Data collection

Data collections were done through the semi-structured and structured interviews of knowledgeable informants like traditional healers i.e. Ojha, Baidya, Kaviraj, middle-aged housewives, senior wise men (Fig. 2) belonging from different ethnic tribes' like- Santals, Lodhas, Mundas etc. for treating sexual and reproductive disorders. Methodologies as suggested by Jain (Jain, 1981; Jain, 1989; Jain, 1995 and Ford, 1978) have been followed for collecting information by conducting structured questionnaire based interviews. Of concerned plant specimens were identified on the basis of taxonomic work-out and consultation of literatures and authentic specimens (Jain, 1981; Jain, 1989 and Jain, 1995)

Taxonomical identification

Taxonomical identification of the plant species was carried to verify the collected samples that were raised during the time of interviews. For the taxonomical identification, herbarium were prepared for each species and then identified by the expert taxonomist under laboratory of plant science, Department of Botany, Jhargram Raj College, Jhargram.

Data classification and grouping

The majority of medicinal plants in the study area were obtained are wild in nature. The plants, classified according to their genera and family, were studied for the treatment of sexual diseases. The plants were classified based on the parts used to treat the different types of reproductive diseases.

Results

In the present investigation 23 species of medicinal plants belonging to a total 22 genera and 19 families were studied for the treatment of sexual diseases (Table-1& 2). All families were dicotyledons. Among the different plants employed for medicinal preparations, herbs are dominated followed by tree, shrub and climber (Fig. 4). Out of the different plant parts, the leaves were most frequently used for the treatment of diseases followed by root, bark, seed, stem gum and latex (Fig. 5). The plants used are found growing and are available in the vicinity and in most of the cases immediately available as therapeutic. However, as time goes on, traditional medicinal knowledge and its associated plants, which were developed for millennia, are subject to loss since they have been stored mainly in the memories of elderly people and handed down mostly by word of mouth over successive generations. Moreover, environmental degradation, deforestation, over-exploitation, over-grazing, agricultural land expansion, and acculturation continuously threaten Jhargram's traditional medicinal plants and the associated knowledge. Hence, it is a timely endeavor to investigate, document, and analyze traditional knowledge of these medicinal plants and the associated knowledge drivers so that sound medicinal plant utilization and management practices can be maintained.

The majority of medicinal plants in the study area were obtained from the wild. The understanding of healing for reproductive diseases in tribal community in our survey, was revealed that tribal community till today used different herbs to treat the major reproductive problem like-menstrual disorder, gonorrhoea, vaginal discharge, Leucorrhoea, haemorrhoids etc. Menstrual disorder, the most common

Table 1. Parts of the plants used for medicinal purpose.

Sl. No	Local Name	Scientific Name	Taxonomic Position	Habit	Parts	Uses
1.(a)	Ulatkambal	<i>Abroma augusta</i>	Division-magnoliophyta Class-Magnoliopsida Order-Malvales Family-Sterculiaceae Genus-Abroma Species- <i>Abroma augusta</i>	S	Root Bark Leaves, Stem	The root and bark is used menstrual disorder The leaves and stem are effectively used in gonorrhoea, uterine disorders
2.(b)	Kantanotey	<i>Amaranthus spinosus, L</i>	Division-magnoliophyta Class-Magnoliopsida Order-Caryophyllales Family-Amaranthaceae Genus-Amaranthus Species- <i>Amaranthus spinosus, L.</i>	H	Roots	Root mixed with molasses to cure white discharge
3.(c)	Punarnava	<i>Boerhavia diffusa</i>	Division-Tracheophyta Class-Magnoliopsida Order- Caryophyllales Family-Nyctaginaceae Genus- Boerhavia Species- <i>Boerhavia diffusa</i>	H	Leaves	Leaf extract mixed with honey is used to control menstrual problem
4.(d)	Semul	<i>Bombax ceiba L.</i>	Division-Tracheophyta Class-Magnoliopsida Order-Malvales Family-Bombacaceae Genus-Bombax L. Species- <i>Bombax ceiba L.</i>	T	Gum	The gum is useful in leucorrhoea menorrhagia
5.(e)	Manasa	<i>Euphorbia neriifolia L.</i>	Division-Tracheophyta Class-Magnoliopsida Order-Euphorbiales Family-Euphorbiaceae Genus-Euphorbia Species- <i>Euphorbia neriifolia L.</i>	S	Leaf	The leaf extract play a great role in anti fertility effect
6.(f)	Bott	<i>Ficus benghalensis L.</i>	Division-Tracheophyta Class-Magnoliopsida Order-Urticales Family-Moraceae Genus-Ficus Species- <i>Ficus benghalensis L.</i>	T	Aerial root, Latex	The aerial root is useful in syphilis Latex is used in gonorrhoea
7.(g)	Dumur	<i>Ficus hispida</i>	Division-Tracheophyta Class-Magnoliopsida Order-Urticales Family-Moraceae Genus-Ficus Species- <i>Ficus hispida</i>	T	Fruit	Used to treat vaginal complains
8.(h)	Gamar	<i>Gmelina arborea roxb.</i>	Division-Tracheophyta Class-Magnoliopsida Order-Lamiales Family-Verbenaceae Genus-Gmelina Species- <i>Gmelina arborea roxb.</i>	T	Root Bark Fruit	The root and bark are effective against piles, urinary discharge and fevers Fruit is used to treat Fruit is used to treat vaginal discharge

9.(i)	Gudmar	<i>Gymnema sylvestre</i> (Retz.) Schult	Division-Tracheophyta Class–Magnoliopsida Order -Gentianales Family-Asclepiadaceae Genus- Gymnema Species- <i>Gymnema sylvestre</i> (Retz.) Schult.	C	Leaves	Leaves used as ant diabetic, heart stimulant and activates the uterus
10.(j)	Anantmula	<i>Hemidesmus indicus</i> L. R.Br.	Division–Tracheophyta Class–Magnoliopsida Order-Gentianales Family-Apocynaceae Genus-Hemidesmus Species- <i>Hemidesmus indicus</i>	H	Roots	Root improves male sexual performance
11.(k)	Jaba	<i>Hibiscus rosinensis</i> L.	Division -Magnoliophyta Class -Magnoliopsida Order -Malvales Family -Malvaceae Genus -Hibiscus L. Species – <i>Hibiscus rosinensis</i> L.	S	Leaves and flowers	Paste of bud and leaf are mixed with molasses and are taken every morning to cure menstrual disorder
12.(l)	Kulekhara	<i>Hygrophila auriculata</i> (Schum.) Heine	Division -Magnoliophyta Class-Magnoliopsida Order-Scrophulariales Family-Acanthaceae Genus-Hygrophila Species- <i>Hygrophila auriculata</i>	H	Root	The roots play a great role in gonorrhoea
13.(m)	Bagbherenda	<i>Jatropha curcas</i> L.	Division-Magnoliophyta Class-Magnoliopsida Order-Euphorbiales Family-Euphorbiaceae Genus-Jatropha L. Species- <i>Jatropha curcas</i> L.	S	Leaves	The latex plays a great role against gonorrhoea and hernia
14.(n)	Lajjabatilata	<i>Mimosa pudica</i> L	Division-Magnoliophyta Class-Magnoliopsida Order-Fabales Family-Fabaceae Genus-Mimosa L. Species- <i>Mimosa pudica</i> L	H	Leaf	Leaves play great role in hemorrhoids
15.(o)	Bakul	<i>Mimusops elengi</i> Linn	Division-Magnoliophyta Class-Magnoliopsida Order-Ebenales Family-Sapotaceae Genus-Mimusops Species <i>Mimusops elengi</i> L.	T	Flower	Dried flower are used to reduce strong Leucorrhoea
16.(p)	Padma	<i>Nelumbo nucifera</i>	Division-Magnoliophyta Class-Magnoliopsida Order-Nymphaeales Family-Nelumbonaceae Genus-Nelumbo Species- <i>Nelumbo nucifera</i>	H(Aqu)	Flower Seed	Stamen is used in urinary trouble Seeds are cardio protective, use in leucorrhoea

17.(q)	Kalomorich	<i>Piper nigrum</i> L.	Division-Magnoliophyta Class-Magnoliopsida Order-Piperales Family-Piperaceae Genus-Piper L. Species- <i>Piper nigrum</i> L.	C	Seed	Seeds are used to treat syphilis
18.(r)	Chita	<i>Plumbago zeylanica</i> L.	Division-Magnoliophyta Class-Magnoliopsida Order-Plumbaginales Family-Plumbaginaceae Genus-Plumbago L. Species- <i>Plumbago zeylanica</i> L.	H	Bark	Bark is effective against gonorrhoea and syphilis
19.(s)	Asoke	<i>Saraca asoca</i> (Roxb) De Wild	Division-Magnoliophyta Class-Magnoliopsida Order-Fabales Family-Leguminosae Genus-Saraca Species- <i>Saraca asoca</i>	T	Stem Bark	The stem bark is used for of menstrual cycle
20.(t)	Berela	<i>Sida cordifolia</i> Linn	Division-Magnoliophyta Class-Magnoliopsida Order-Malvales Family-Malvaceae Genus-Sida Species- <i>Sida cordifolia</i> L	H	Seeds	Seeds are used in gonorrhoea
21.(u)	Amra	<i>Spondias mombin</i> L.	Division-Magnoliophyta Class-Magnoliopsida Order-Sapindales Family-Anacardiaceae Genus-Spondias L. Species- <i>Spondias mombin</i> L	T	Bark	Bark use as a remedy for gonorrhoea
22.(v)	Kuchila	<i>Strychnos nuxvomica</i> Linn.	Division-Magnoliophyta Class-Magnoliopsida Order-Gentianales Family-Loganiaceae Genus-Strychnos Species- <i>Strychnos nuxvomica</i> L	T	Seed	Seeds are effective against gonorrhoea and leucorrhoea
23.(w)	Ashwagandha	<i>Withania somnifera</i>	Division-Magnoliophyta Class-Magnoliopsida Order-Solanales Family-Solanaceae Genus-Withania Species- <i>Withania somnifera</i> L.	H	Leaves	Leaves are used for fertility problem

problem among the tribal women, treated by *Abroma augusta*, *Boerhavia diffusa*, *Hibiscus rosasinensis*, *Saraca asoca*. etc. For treating gonorrhoea plants like *Strychnos nuxvomica*, *Spondias mombin*, *Sida cordifolia*, *Plumbago zeylanica*, *Abroma augusta*, *Ficus benghalensis*, *Hygrophila auriculata*

played very important role. People suffered from vaginal discharge were cured by using herbs like *Amaranthus spinosus*, *Gmelinara arborea* etc. Leucorrhoea was treated by *Bombax ceiba*, *Mimusops elengi*, *Nelumbo nucifera*, *Strychnos nuxvomica* etc. This reliance on medicinal plants by the tribal



Medicinal Plants as mentioned in the Table 1.

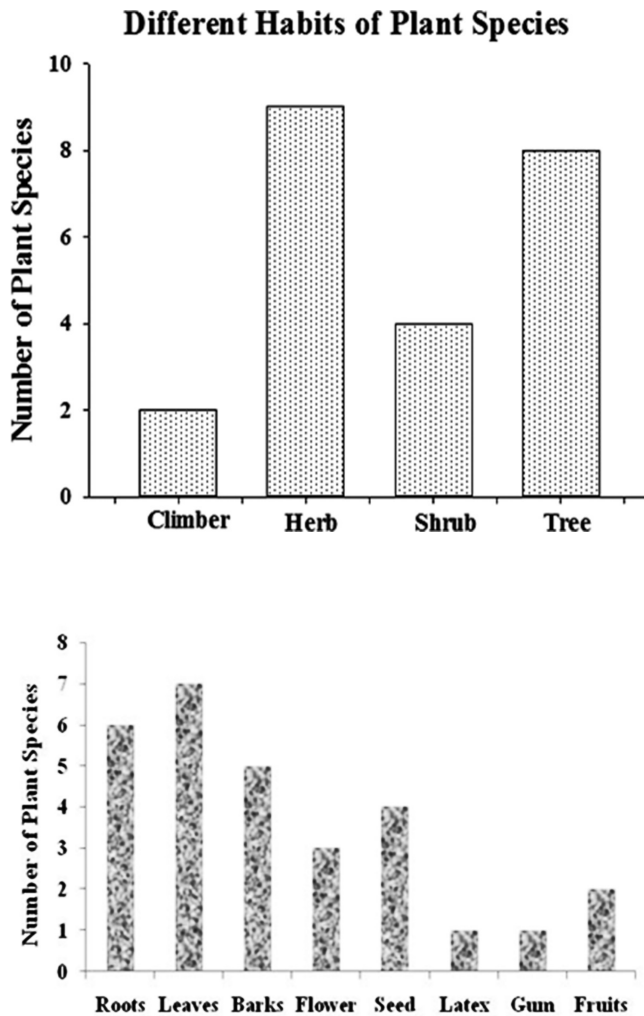


Fig. 5. Different Parts of Plants Used for Medicine.

population can be explained partly by the high cost of allopathic drugs and inaccessibility of modern health institutions, but also by the cultural acceptability of the traditional system.

Discussion

Many people still now in rural areas continue to use their traditional medical system because it fits well within their culturally defined concept of health and illness (WHO 1991). Biomedical systems and the treatment options available within that system may not be good options in some societies depending on their understanding of illness. Individuals continue to seek treatment within their traditional medical system because it provides people an explanation for illness

not available in biomedical systems. In the traditional system of medicine, plant preparations in the forms of decoctions, concoctions, macerations, or infusions are used to treat a wide range of diseases. Traditional medical systems are often the preferred method of treatment. The traditional medical system fits much better within the individuals' own belief system than the biomedical system. Treatments in traditional medical systems are more attractive because normally they are inexpensive and extremely accessible locally. Some of these plants are used in connection with human reproductive health problems, which are an important public health and social problem (Ranu M Panduranga *et al.* 2011).

Traditional healers and elderly persons in the Jhargram Division are expected to have rich knowledge of traditional medicine involving medicinal plants. Such knowledge is, however, under threat, just as is happening elsewhere in the country. The dominant use of medicinal plant for various ailments associated with the reproductive health system might be related to their proven effectiveness over many years of trial and indigenous knowledge accumulated on the efficacy of such preparations (Enitome E Bafor, 2017). Furthermore, it provides the opportunity for recognition, promotion, management, and protection of indigenous medicinal plant knowledge of any community as a vital part of the nation's heritage. This piece of ethno botanical work emphasizes about the traditional knowledge employed for treatment of sexual and reproductive disorder. Efforts to protect medicinal plants in the study area were minimal. However, traditional belief systems may help conservation of medicinal plants. Keeping knowledge of medicinal plants secret can also contribute to their conservation. It was reported that, if medicinal plants were to be used by more people, the threat could even increase. Therefore the documentation of plants used as traditional medicines in tribal community is needed so that this veritable treasure of knowledge can be preserved, shared and exploited sustainably. This article might attract the attention of ethno botanists, phytochemists and pharmacologists for further critical investigation of plants present in Jhargram district of West Bengal, India.

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