

**A REVIEW ON TRADITIONALLY USED MEDICINAL PLANTS FOR TREATMENT OF
INFERTILITY IN NORTH- EAST (INDIA)****Moksood Ahmed Laskar*, Priyanka Goswami and Mrinmoy Basak**

Faculty of Pharmaceutical Science Assam Down Town University, Guwahati-26. Assam, India.

Received on: 12/06/2020**Revised on: 02/07/2020****Accepted on: 16/07/2020*****Corresponding Author**Moksood Ahmed Laskar
Faculty of Pharmaceutical
Science Assam Down Town
University, Guwahati-26.
Assam, India.**ABSTRACT**

The investigation of this study reports on some medicinally important plants which are found to be used traditionally by villager and tribal peoples of North east (India) for the beneficial treatment purposes of various male and female reproductive procurements related disease conditions such as leucorrhoea, erectly dysfunction, infertility, dysmenorrhoea, menstruation disorders and pregnancy related problems. Over a survey of it has been found that there are more than 100 medicinal plants which has been used to treat the reproductive disorders out of which very few of them has confirmed with such potential. The plants belonging from the family like Musaceae, Sterculiaceae, Liliaceae, Rubiaceae, Apiaceae, Punicaceae etc. has found highest uses followed by members of etc. which were used by total 14 tribes and 3 communities distributed in various part of Assam. The observation obtained in this study gives a better knowledge focusing the medicinal plants available in area of North east (India), which may often be helpful for a pathway for further experimental studies, which will be beneficial for the mankind with better reproducibility, safe and economical purposes of such treatment.

KEYWORDS: Medicinal plants, infertility, ethnic communities, North east (India).**1. INTRODUCTION**

Northeastern India referred as a green hub covering the states like Assam, Meghalaya, Manipur, Arunachal Pradesh etc. which are extremely rich in various species of plants and their herbs of having high medicinal value. The Northeastern India with its optimal climatic condition it facilitates the proper growth with best life for the plant, the annual rainfall is found in between 305 cm. maximum to 178 cm. minimum having an average of 211.76 cm. The temperature recorded in summer is 37 °C maximum and 18 °C minimum and 26 °C maximum and 7 °C minimum in winter, the humidity of 83.00% is observed as an average.^[1] Many traditionally used medicinal plants which are meant to treat various diseases by the different tribal and rural people of Assam. The female reproductive problems are the major problem in rural societies of Assam and such disorder are found to be treat by using such folklore plants having such medicinal value which has always been a part in their life being folk. The oral knowledge behind this traditionally used medicinal plants used to be transmitted from generation after generation which are observed as published elsewhere with different headings such as ethno-botanical studies related to women diseases,^[2] gynecological disorder,^[3] fertility related issue.^[4,5] etc. with the same, this is also a sincere attempt to present report of such survey which has been made in various locations to provide the documented evidences for

various traditionally used medicinal plants for the better reproductive health care by the different indigenous and tribal communities of Northeastern India.^[6]

The factors involves in Male infertility may be because a variety of factors such as genetic factors, environmental, genotoxicity and behavioral which results into the impairment of spermatogenesis in different stages.^[7] The testicular spermatogenesis which comprises an extremely précised and synchronized way for the generations of germ cells involving proliferation phase (spermatogonial mitosis); the transformation in the morphology of undifferentiated spermatids into a motile sperms which is highly specialized i.e. spermiogenic phase.^[8] The factors which impaired the female fertility can be classified into various categories such as 1. Reduced proliferation and development in the sertoli cells as well as perinatal germ cells which causes foetal determinants of spermatogenesis in adulthood and may result into testicular germ cell cancer type of syndrome 2. Lifestyle involving stress, smoking, alcohol scrotal heating, obesity, and drugs abuse may often effects the spermatogenesis in case of adulthood 3. Long term exposure to the environmental hazards in adulthood which may be as pollutants, occupational exposures, has always been a high risk of impaired male infertility and spermatogenesis.^[9] Although there are different synthetic drugs which are available for the treatment of infertility; however, these synthetic drugs has always a challenges

for safety and economic margin thus researchers are mostly intending for drugs available as natural sources with appropriate effectiveness, safety and economic point of view. In developing countries also the traditionally used medicine mostly plant sources important for maintenance of public health.^[10]

The problem infertility remains a big challenge in these days as these are associated with many complicated factors such as economic, psycho-logic, and also the abnormality in the reproductive system. The infertility may be defined as lack of ability for conceiving after a year of sexual intercourse without any protection. About 15 percent of couples world-wide suffer infertility.^[11] As per the data of World Health Organization (WHO) it has been reported that 60-80 millions of couple they suffer from infertility worldwide. It is quite difficult to identify exact reason behind infertility although it can be estimated as because of both sex hormonal deregulation in both male and female or may be due to some anatomical abnormalities.^[12] As per the report found from the different studies, almost 20%–50% of cases the reason of infertility is because of male, whereas about 40% of infertility where female as the factors, and there are 25% of causes with unknown reason.^[13] The reason behind male infertility may include post-testicular, pre-testicular, and unknown, abnormality in the sperm has been found as the major problem ranges from 30%–40% of infertility in all cases.^[14] The dysfunction of testicular which involves several reasons may be due to lifestyle based or disease presence of conditions such as infection, alcohol, cigarettes, trauma, varicocele, anomalies, drugs, cryptorchidism, chromosomal aberrations and radiation also may leads to a prime reason of infertility in men. Female infertility may involves the different etiologies included cervical problems, tubal diseases, ovarian diseases, uterine pathologies, congenital abnormalities, endometriosis, and hypothalamus-pituitary-ovarian dysfunctioning may also leads to female reproductive diseases or infertility.^[15,16] Moreover, in this procurement herbal medicines act as the main modalities due to their safety margins and economic point of view.

2. MATERIALS AND METHODS

The study was carried out in Manipur (Imphal), Assam (Kamrup), Meghalaya (Shilong), Arunachal Pradesh (Along) and Nagaland covering the north east India. In this survey the area in habituated by the people belonging to Kuki, Naga, Koch Rajbangsi, Kachari, Meeitei, Garo, Khasi etc. the ethnic group of people over north eastern region of India. Agriculture has always been an important part of their life as occupation, although the agricultural land is scarce, so Jhum cultivation is being mostly predominant over the wet cultivation in their valley or low hill area. In such rural area rice is the only staple food but dependence of plant as source of food as well as health care benefits. Modern system of health care facilities are almost not existed in such rural areas of diversity as a result traditionally used

medicinal plants and their herbs are always been a major option for their health care issues. People of those areas have to rely the medicine which has been used traditionally in their areas since long generation as prescribed by wisdom inherited with generation from their ancestor or by medicine men.

The design of the study in villages by obtaining proper permission for conducting the survey from head or elders of respective communities. In this study we obtained the data which is related to traditionally used medicinal plants for enhancement or treatment of human fertility. The collection of data was done on January, 2018 to February, 2020 with the listed 27 informant's plant having potential activity towards the treatment of infertility as per the survey. In this survey the interview was conducted with 40% male (age between 30-80 years old), and female (age between 25-75 years old) out of them almost 30% were responded as non-schooling and 50% had the primary level and only 20% people with high schooling and higher education. Data collection was following by a structured interview of ethnobotanical inventory and also as field interview. The informants from the various habitats along with the medicinal plant species were discussed and the specimen was processed for standardization as per taxonomical method.^[15] The information were collected about the their purpose of uses, part used, habitats and preparation.

3. RESULTS: The obtained result of this study has enumerated in the **Table 1**, in which the traditionally used medicinal plants are being listed with their purposes of used specific to the diseases along with their local name botanical name, parts used, family etc. involved in the areas with proper prescription and report as states in parenthesis. Most of the plant have been reported in this study have found to possess a potential for enhancement and inducing of fertility.

Table 1: Showing the Plant having potential towards infertility treatment.

Sl. No.	Scientific name	Family	Local name	Parts used	Used in
1	<i>Musa velutina</i>	Musaceae	Malbhog	Fruit	Fertility
2	<i>Abroma augusta L.</i>	Sterculiaceae	Ulat kambol	Petiole	Fertility
3	<i>Asparagus racemosus</i>	Liliaceae	Satamul	Root	Fertility
4	<i>Paederia foetida</i>	Rubiaceae	Bhedai lota	Leaf	Fertility
5	<i>Centella asiatica</i>	Apiaceae	Manimuni	Whole plant	Fertility
6	<i>Punica granatum</i>	Punicaceae	Dalim	Leaf	Fertility
7	<i>Lawsonia inermis</i>	Lythraceae	Jetuka	Leaf, root, bark	Fertility
8	<i>Enydra fluctuans</i>	Asteraceae	Helochy	Whole plant	Fertility
9	<i>Desmodium gangeticum</i>	Fabaceae	Shalaparni	Whole plant	Fertility
10	<i>Leea macrophyla</i>	Vitaceae	Doolmudra	Leaf, root	Fertility
11	<i>Citrus aurantifolia</i>	Rutaceae	Kaji nemu	Fruit	Fertility
12	<i>Pongamia pinnata</i>	Fabaceae	Karos	Root, bark, leaf	Fertility
13	<i>Ipomoea aquatica</i>	Convolvulaceae	Kalmou	Fresh twing	Fertility
14	<i>Saraca asoca</i>	Caesalpinaceae	Ashok	Fruit, bark	Fertility enhancement
15	<i>Musa paradisiaca</i>	Musaceae	Banana	Root	Inducing fertility
16	<i>Solanum indicum</i>	Solanaceae	Gos alu	Fruit, root	Inducing fertility
17	<i>Cynodon dactylon</i>	Poaceae	Dubori bon	Whole plant	Infertility treatment
18	<i>Clitoria ternatea</i>	Fabaceae	Aparajita	Leaf, root, seed	Enhance fertility
19	<i>Argyrea speciosa</i>	Convolvulaceae	Bichitrak	Fruit, root	Induce fertility
20	<i>Putranjiva roxburgii</i>	Euphorbiaceae	Putrajiv	Seed, leaf	Induce fertility
21	<i>Cleome gynandra</i>	Capparaceae	Bhutmula	Leaf	Induce fertility
22	<i>Amaranthus tricolor</i>	Amaranthaceae	Morisha hak	Whole plant	Increase fertility
23	<i>Tylophora asthamatica</i>	Asclepiadaceae	Jangli pikram	Leaf, roots	Enhance fertility
24	<i>Tinospora cordifolia</i>	Menispermaceae	Guruchi	Leaf, stem	Enhance fertility
25	<i>Mucuna prurita</i>	Fabaceae	Cowitch	Root	Enhance fertility

4. DISCUSSION

The present study reveals the traditionally used medicinal plant by the north eastern people of India which included 28 plant species belonging from different genus and families, among the whole plants some plant families such as Musaceae, Sterculiaceae, Liliaceae, Rubiaceae, Apiaceae, Punicaceae etc. has been reported to have more highest effectiveness. The different types of preparations are used in the oral route of administration may be in the forms of paste, extract, juice, tablet and also as an infusion. Almost 10 different communities have been found to be using these medicinal plants with the claims related to infertility treatment in male and female among the various part of north eastern state of India.

5. CONCLUSION

The study elucidated the rich knowledge on traditionally used medicinal plants obtained during the observation in the ethnic people of north east, India covering a huge range of communities, they have been found to be used these plants in the treatment of infertility. However, this study declines because of degradation of natural resources and globalization. Thus it is important to conserve such medicinal plant in such area of earlier herbal tradition. This study can be beneficial in terms of ethnomedicinal knowledge obtained from the indigenous groups of people as documented evidences or novel information. Such study can be helpful by providing the

new avenues in future pharmacological evaluation and the natural drug discovery.

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