Uses of Ethno Medicinal Plants by Tea Tribes of Assam for Women Reproductive Health: A case study among Adivasi Community of Tingrai Tea Belt Area of Tinsukia District, Assam

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Abstract :
"Use of plants and plant products for healing and curing different sorts of human diseases is a practice of thousand years. These types of information's are available in Vedas and there are many such books available in traditional Indian medicine systems like "Sarak Samhita", "Sushrut Samhita" etc. Lots of descriptions and references about use of herbal medicines related to women reproductive health are still not present in recorded form and which are being used by various ethnic and indigenous communities in India and across the globe. From October 2019 to February 2020 a survey was made among tea tribe (Adivasi) community of Assam in Tingrai tea belt area of Tinsukia district of Assam which is predominantly inhibited by them. It can be concluded that despite of Modern health care facility provided by tea garden management they consume and use lots of herbal medicines for various women reproductive health care due to their traditional and customary belief. It is very much important to explore and record these ethnobotanical information.

Key Words: *Infertility, Herbarium, Chemical elucidation, Ethnobotany.*

Introduction :

North East India is one of the mega biodiversity region is being declared as hot spots of biodiversity by World Conservation Union (WCU) and it comes under Indo Burma biogeographical realm (Mayer, 2000). Assam which is one of the eight north eastern states covering a geographical area of 78,438 sq. km and out of it 27826 sq. km is under forest cover (State forest report, 2003; FSI, Govt. of India). It supports diverse type of natural terrestrial and fresh water aquatic ecosystem like, a) Wet evergreen forest ecosystem, b) Semi evergreen forest ecosystem, c) Broadleaved deciduous forest ecosystem, d) Grassland ecosystem in riverian ecosystem, e) Lotic ecosystem and f) Lentic ecosystem. In en-

tire N.E. India there are more than 15000 recorded species flowering plants out of which + 3010 species are recorded from Assam (Chatterjee et. al. 2006). These recorded plant species are predominantly found in wild form and some are domesticated and cultivated with the aim of economic gain. Lots of these species are being used as ethno medicinal herbal drug by different tribes as customary medicine to cure different sorts of disorders of human as well as for cattle's. According to World Health Organisation report (2008), 80% of the people in developing nation use traditional medicine for health care (Sapam et. al. 2017). Ethno medicine systems are mainly used for cosmetological purpose, for getting pharmacologically active substances and for healthcare (Cox and Balick, 1994). When we focus on healthcare, Women health is a major dimension and point of interest because they face a lot of issues and problems in reproductive health during puberty, menstruation period, conceive child birth, menopause, old age and also mental health related disorders. From ages various communities across the globe use herbal ethno medicinal plants for treatment of this sort of disorders (Abraham, 1981; katiyae et. al., 2012)"Assam with a geographical location of 24044' N to 27045'N latitude and 89041'E to 96002'E longitude comprise of 14 plain tribes and 15 hill tribes (Department of Plain tribes and backward classes, govt of Assam, 2021). The tea tribe community which migrate to colonial Assam during 1860-1890 from Jarkhand, Odissa, Chittasgarh, West Bangle and Andhra Pradesh (Sharma 2012) are now inhabitant of Brahmaputra and Barak valley with a population 6.5 million are called as Adivasi. They work as skill labour (both men and women) in tea gardens. With socioeconomic condition women health care is a major issue. Certain customary believes like early marriage of girl, lack of hygiene, malnutrition and lack of awareness and scientific approach leads them to various types of reproductive health related problems. But use of indigenous knowledge and herbal medicine system at local level practice by traditional herbal medicine practitioners and local people of the said community for certain gynaecological and women reproductive health related disorders found to be potential and interesting from pharmacological and ethno botanical point of view.

Objectives :

1. To present a list of species of different herbal medicinal plants used by tea tribe community of Tingrai tea belt area, Tinsukia district, Assam for reproductive health and different gynaecological disorders of women.

2. To Screen importance of these herbal plant species for modern day women health care management systems.

3. To contribute to the knowledge of the ethnomedicinal use of different plants and plant parts for proper documentation. "MATERIALS AND METHODS"AREA OF STUDY"The present study was carried out in three major tea gardens in Tingrai area (27026'37"N and 95035'38"E) of Tinsukia district of Assam. The total area cover of the studied area is 32 sq. km with domination of Adivasi people. Name and the population data of the three gardens are shown in table 1 below."

Table:-1

Sl. No.	Name of the garden	Approx. Population (as record received from garden hospital)
01	Bogapani Tea Estate	6875
02	Holonghabi Tea Estate	1650
03	Srikrishna Tea Estate	1100

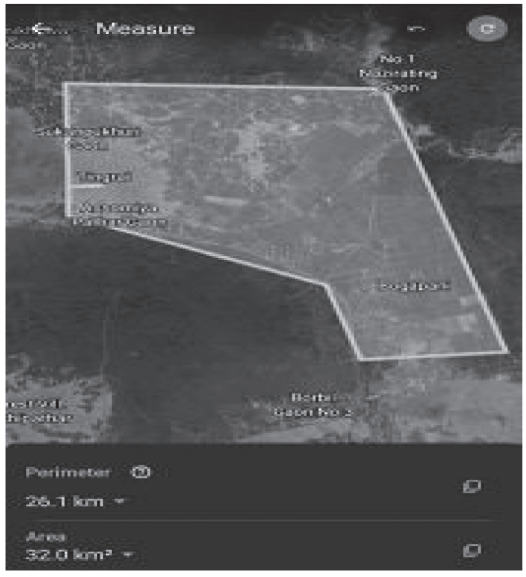

Fig1:-Map of studied area (Courtesy: Google Earth)

Methodology :

The study was designed including survey of the area and collecting information about herbal medicinal plants used by the community for women health through interview with local herbal medicine practitioner and also with the local people specially women whom considered as peer group. The data was collected for two months time during the October and November, 2021 with due permission from interviewee because of hesitation in sharing the information due to customary believe and gender constrains. During data collection, certain parameters are considered like habitat, parts of the plant used, treatment protocol etc. Standard method is followed during collection of photo data and preparation of herbarium. Binomial names (scientific name), family, vernacular names and specific disorders where it is used are also recorded.

Discussions :

A total 21 species of plants are recorded with their parts used belongs to 17 different family. Some are been utilised alone and some are biosynthesized by mixing with parts of other plants

or ingredients to get the best result for healing and curing of the women gynaecological problems. 4 numbers of plants are reported to used against white discharge, 3 are used to treat puberty related disorder, 4 are used against uterus tumour, 2 are reported to used against infertility problems, 1 reported to use against mental anxiety during pregnancy, 3 species are reported to help in lactation, 1 help in menstrual irregularity and 3 are reported to heal the internal injury against after child birth. Most of these plants are collected by local herbal medicine practitioner from wild habitats but some of them are cultivated variety also and most of them consumed orally but few are prescribe to use and apply externally also. Many times people hesitate to share their information's and experiences due to their customary belief. They receive these valuable traditional knowledge and information's about these potential bioresource orally from their elders which are not documented properly.

Results :

The data collected are recorded in tabular form with graphical representation of different parts used.

Table:-2

Sl. No	Binomial name	Family	Vernacular name	Parts used	Disorders	Method of using
01	*Mimosa pudica* L	Mimosaceae	Lajuki-lata	Root	White discharge.	Root boiled with water and ¼ cup of juice is taken orally in empty stomach daily for 7 to 15 days.
02	*Opentia fiscus-indica* (L.) Mill.	Cactaceae	Sagor-phena	Stem (Phylloclad)	White discharge.	Sap is mixed with Palm sugar and raw cow milk and 1 tea spoon is taken orally for 7 days.
03	*Bambax ceiba* L.	Bombacaceae	Simolu	Bark	White discharge.	Sap is extracted from the bark and mixed with Palm sugar and 1 tea spoon taken orally till the problem cures.
04	*Brassica juncea* (L.) Czern.	Cruciferae	Lai-sak	Lai-sak	Delay in Puberty.	Seed grinded and applied externally in lower abdomen only once or twice.

Sl. No	Binomial name	Family	Vernacular name	Parts used	Disorders	Method of using
05	*Cynodon dactylon* (L.) Pers.	Poaceae	Dubori-bon	Leaf	Delay in Puberty & uterus tumour.	5 tea spoon of leaf sap taken orally twice daily before food for 7 days.
06	*Sesamum indicum* L.	Pedaliaceae	Til	Seed	Delay in Puberty & uterus tumour.	200gm of Seed mixed with 200gm jiggery boiled with 1 cup of water and water content reduced up to 1/4 taken orally twice daily before food till the problem cures.
07	*Saraca asoca* (Roxb.) Willd.	Caesalpiniace-ae	Ashok	Bark	Bark	Bark is soaked in water and boiled to get the juice and 1 tea spoon is consumed orally at bed time after food till the problem cures.
08	*Musa balbisiana* Colla.	Musaceae	Bhim kol	Flower	Infertility problem and conception.	5-6 nos. of Raw flower is taken orally in empty stomach for after 7 days of menstrual cycle till the next menstrual cycle starts. .
09	*Brassica oleracea* var. *capitata*	Brassicaceae	Bondha kobi	Leaf	Uterus tumour.	Leaf roasted with butter and rock salt and taken orally for 15 days. If problem not solved then it is repeated.
10	*Foeniculum vulgare* Mill.	Apiaceae	Sofguti or Guamori	Seed	Infertility problem.	Seed grinded and 1 tea spoon of grinded powder is mixed with 1 cup of cow milk to take orally for 1 month.

Sl. No	Binomial name	Family	Vernacular name	Parts used	Disorders	Method of using
11	*Ipomoea aquatica* Forssk.	Convolvulaceae	Kolmou sak	Leaf and stem	Helps in lactation after child birth and breast cancer.	Prepare soup by boiling or roasted and consume orally. Grinded leaf use to prepare paste and applied externally in breast region till the problem cures.
12	*Curcuma longa* L.	Zingiberaceae	Halodhi	Rhizom	Helps in lactation after child birth.	3 spoons of raw juice taken orally twice daily before food till the problem solved.
13	*Entada rheedii* Spreng.spp. *sinohimalensis* (Grierson & Long.) Panigrahi.	Mimosaceae	Ghila	Seed	Helps in lactation after child birth.	Seed grinded and powder is consumed orally with a cup of water or milk for 2 to 3 months.
14	*Bauhinia acuminate* L.	Caesalpiniaceae	Kanchan	Bark	Mental anxiety during pregnancy.	Bark is grinded with root of Bos (Acoras calamus Linn.) and applied externally in the whole body for 5 to 7 days.
15	*Acoras calamus* Linn.	Araceae	Bos	Root	Helps in reducing pain during menstruation period.	Paste of root mixed with garlic and taken orally. 1 table spoon is taken during the time of pain.
16	*Datura metel* L.	Solanaceae	Krishna Datura	Root	Helps in curing uterus disorders.	Paste of root applied externally in lower abdomen for minimum 15 days.

Sl. No	Binomial name	Family	Vernacular name	Parts used	Disorders	Method of using
17	*Pogostemon benghalens*is (Burn.f.) kuntze.	Lamiaceae	Sukloti	Leaf	Helps in curing uterus injuries during child birth.	Leaf is boiled with water to prepare juice or curry and taken orally for 7 to 15 days.
18	*Centella asiatica* (L.) Urb.	Apiaceae	Bor manimuni	Leaf and stem	Source of Iron which helps in building haemoglobin of the mother after child birth.	Sap of leaf can be consumed orally in raw format at a dose of 2-3 table spoons or in form of curry for 20 to 30 days.
19	*Hydrocotyle sibthorpioides* Lam.	Apiaceae	Saru manimuni	Leaf and stem	Source of Iron which helps in building haemoglobin of the mother after child birth.	Sap of leaf can be consumed orally in raw format at a dose of 2-3 table spoons or in form of curry for 20 to 30 days.
20	*Paederia foetida* L.	Rubiaceae	Bhedai lota or Bhabeli lota	Leaf	Source of Iron which helps in building haemoglobin of the mother after child birth helps in healing internal injuries.	Sap of leaf can be consumed orally or in the form of curry.
21	*Cheilocostus speciosus* (J. Konig) C. Specht.	Costaceae	Jomlakhuti	Stem	White discharge.	Stem boiled in water and ¼ cup of juice taken orally for 7 day.

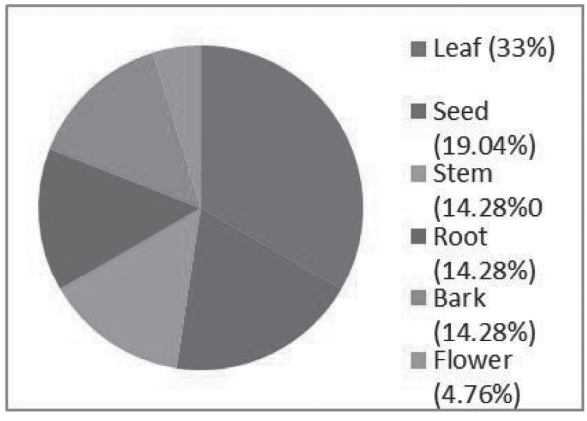

Fig 2: Percentage of different plant parts used.

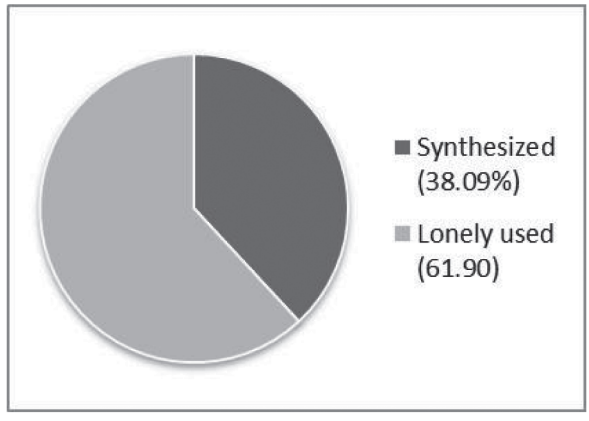

Fig 3: Percentage of drug used in Synthesized manner or in lonely manner.

Plate A : *Ipomoea aquatica*. (Kolmou Sak). (Photograph: Own)

Plate B : *Pogostemon benghalensis* (Burn.f.) kuntze. (Sukloti). (Photograph: Own)

Plate C : *Bambax ceiba* L.(Simalu) (Photograph: Own)

Plate D : *Cheilocostus speciosus* (J. Konig) C. Specht. (Jomlakhuti) (Photograph: Own)

Plate E : *Entada rheedii* Spreng.spp. *sinohimalensis* (Grierson & Long.) Panigrahi.(Ghila) (Photograph: Own)

Plate F : *Acoras calamus* Linn. (Bos) (Photograph: Own)

Conclusion :

The present study carried out tried to focus on various herbal medicine used by local herbal medicine practitioner of tea tribes Assam for issues relate to women reproductive health. Further chemical screening and elucidation, scientific trial and proper documentation of these potential herbal medicines is needed. However, a lot of information's already being lost due to lack of consciousness and scientific documentation. So, it is very necessary to make thorough scientific study of these data and protocol of their uses.

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