Medico-ethnobotanical Claims from Sunaikuchi and Khulahat Reserve Forests in Morigaon District of Assam

Devanjal Bora¹, Ekta², Bandi Venkateshwarlu³, Chinmay Rath⁴, Anupam Kumar Mangal⁵

ABSTRACT

Aim: The present communication deals with report of medico-ethnobotanical claims and folklore medicinal plants documented during survey made to areas in and around Sunaikuchi and Khulahat Reserve Forests in Morigaon district of Assam.

Materials and methods: Field surveys were conducted in the study area where folk healers were interviewed for documentation of medico-ethnobotanical information. The reported folklore plant specimens were collected, identified, and preserved.

Results: The reported folk claims involve 10 medico-ethnobotanical claims for 9 disease conditions involving 12 medicinal plants under 12 genera represented by 11 families. Indications of respective species in traditional system of medicine have been reviewed against documented folklore medicinal plants for further validation of folk claims.

Conclusion: Folklore plants are suggested for further validation and experimental screening.

Significance: Corroboration with indications of traditional system of medicine will validate the use of the folklore plant.

Keywords: Assam, Folklore plants, Medico-ethnobotanical claims, Morigaon, Ayurveda, Sunaikuchi, Khulahat.

INTRODUCTION

In the recent years, plant-derived drug research has become more promising as a better alternative for synthetic medicine and therapeutics in spite of many challenges.¹ World Health Organization (WHO) has listed nearly 21,000 plants which are in use for diverse medicinal purposes around the world. Being the largest producer of medicinal herbs, India is known as the botanical garden of the world catering to the needs for herbal medicines.² The WHO report revealed that around 80% of world population depends on the traditional medicines, largely on plant-derived drugs toward their healthcare, among which 30% of currently used therapeutics are from natural resources alone. Owing to the increasing cultural acceptability and significantly lower side effects, nearly 75–80% of the whole population in the developing countries mostly prefer the herbal treatment for primary healthcare.

Ethnopharmacological knowledge along with the traditional use toward the scientific investigation of medicinally important plants augments the prospects of alternative medicine and therapeutic values. The medico-ethnobotanical practices of the tribal communities of North East India were critically studied and documented for various uses elsewhere. In this communication, medico-ethnobotanical claims documented against some disease conditions from areas in and around Sunaikuchi and Khulahat Reserve Forests in Morigaon district of Assam has been reported.

STUDY AREA

The Morigaon District of Assam harbors a good number of medicinal plant species. It is situated between 26.11°N and 26.30°N latitude and between 91.98°E and 92.49°E longitude covering a geographical area of 1704 km². The Brahmaputra marks northern boundary and the Killing, Kolong, and Kapili river drain in the southern part of the district. It experiences medium to high rainfall. The temperature is moderate ranging from 13°C to 35°C. The pH of soil ranges from 4.5 to 6.8. Morigaon district is not only rich in biodiversity but also rich in its cultural heritage. It is a land of multiculture with large number of ethnic tribes. Tiwa, Bodo, Karbi, etc., tribes have their own traditional healthcare systems. This region is richly well surrounded by various plant resources which are either utilized by these tribes as edible food, shelter, and fodder or used as medicinal purpose to treat various ailments. Ethnobotanical explorations and publications were made time to time covering Morigaon and Tiwa tribe.⁶ With the erosion of the tribal cultures, the traditional healers have become a threatened category. Also, the genetic diversity in medicinal plants has diminished due to shifting cultivation and large scale destruction of their natural location. This traditional knowledge is the best starting point for effective in situ conservation, which requires accurate and up to date information on the status of medicinal plant populations, the extent and nature of plant use by...
local communities, and the capacity of the resource base to support different economic activities, including all aspects of medicinal plant research. National policy on medical pluralism in India encourages the mainstreaming of AVUSH systems and the revitalization of local health traditions (LHT).

**MATERIALS AND METHODS**

Field survey was carried out during July, August, and September 2018 in various areas in and around Sunaikuchi and Khulahat Reserve forests and nearby tribal locations of Morigaon district by the Survey team of the Institute. The survey was conducted by adopting standard methodologies\(^\text{5-11}\) and as per Guideline of Central Council for Research in Ayurvedic Sciences, New Delhi. Characteristic features of the collected plant materials like habit, habitat, flower color, distribution, and occurrence were recorded in field book and their records were maintained. The medico-ethnobotanical information was also collected by interviewing the local herbal practitioners and elderly persons of the area. Voucher specimens were collected with the help of local practitioners from the nearest forest area. Specimens were properly dried, mounted, and preserved after identification using standard local and regional floras\(^\text{12-14}\) followed by matching the specimens with the standard preidentified specimens of the Herbarium of the Botany Department, Regional Ayurveda Research Institute for GID, Guwahati where voucher specimens were finally deposited for further reference.

**RESULTS**

Results of the medico-ethnobotanical survey are enumerated below where folklore medicinal plants are arranged against disease conditions with scientific name, family, habit, Sanskrit name, common name, parts used, and voucher numbers, respectively, in parenthesis with details of mode of administration along with amount of ingredients and doses.

**Kit-dansh (Insect Bite)**

Paste of fresh bark of *Cinnamomum verum* J. Presl [Lauraceae; tree; Tvak (S); Daalchini (A); Bark; DB-7215; Lat-26.076, Lon-92.264] is bandaged in the affected area for 2 days in minor insect bite (unspecified by the claimant).

**Shwa-dansh (Dog Bite)**

One inch size of root bark of *Calotropis procera* (Alton) Dryand [Apocynaceae; shrub; Alarka (S); Aakon (A); Root bark; DB-7537; Lat-26.096, Lon-92.266] is mixed with two fruits of *Piper nigrum* L. [Piperaceae; climber; Maricha (S); Jaluk (A); Fruits; DB-7535; Lat-26.096, Lon-92.266] and made into paste with small amount of water. The preparation is orally administered with water one time per day for 3 days.

**Karnsra (Ear Discharge)**

Two to three drops of leaf juice of *Fragaria indica* Wall [Rosaceae; herb; Garukhis (A); Leaves; DB-7543; Lat-26.12, Lon-92.27] is used as ear drop for 2 to 3 days in ear discharge.

**Udar Shula (Stomach Pain)**

- Seed oil of *Argemone mexicana* L. [Papaveraceae; herb; Katuparni (A); Sialkatah (A); Seed oil; DB-7208; Lat-26.065, Lon-92.253] is locally applied as massage three times in a day or as per need in stomach pain.

- Fresh leaves and aerial parts of *F. indica* Wall [Rosaceae; herb; Garukhis (A); Leaves; DB-7543; Lat-26.12, Lon-92.27] are taken orally as boiled or cooked vegetable, two times per day for 3 days in stomach pain.

**Vran Ropan (Wound Healing)**

Twenty-gram dried powder of stem bark of *Oroxylum indicum* (L.) Kurz [Bignoniaceae; tree; Shyonaaka (S); Bhat ghila (A); Stem bark; DB-7527; Lat-26.065, Lon-92.253] is orally administered daily for wound healing with water or honey till cure.

**Asthi Bhanga (Bone Fracture)**

About 250 g (freshly collected) each of stem part of *Cissus quadrangularis* L. [Vitaceae; climber; Asthisamhaara (S); Harjhora (A); Stem; DB-7539; Lat-26.12, Lon-92.27], bark of *Litsia glutinosa* (Lour.) C.B.Rob. [Lauraceae; tree; Medaasaka (S); Baghnola (A); Bark; DB-7504; Lat-26.065, Lon-92.253], and roots of *Cerisicoides campanulata* (Roxb.) Tirveng. [Rubiaceae; shrub; Tagar (S, A); Roots; DB-7545; Lat-26.12, Lon-92.27] are made into paste and tied in the broken part in the form of a bandage which is to be changed in every 3 days. The procedure is to be followed till 1 month in bone fracture.

**Sukha-prasava (Easy Delivery During Child Birth)**

Paste of 3–5 cm root piece of *Glycosmis pentaphylla* (Retz.) DC. [Rutaceae; shrub; Vana-nimbukaa (S); Chaowldhowa (A); Root; DB-7498; Lat-26.096, Lon-92.266] is locally applied in lower abdomen 2/3 times for easy delivery during child birth.

**Kamala (Jaundice)**

Young twig and leaves of *Cassia fistula* L. [Leguminosae; tree; Aaragvadha (S); Sonaru (A); Young twig and leaves; DB-7531; Lat-26.096, Lon-92.266] are prescribed in paste form is orally prescribed one time per day for 3 days.

**Arsha (Piles)**

Paste of stem of *Cheilocostus speciosus* (J.Koenig) C.D.Specht [Costaceae; rhizomatous herb; Kebuka (S); Jom-lakhuti (A); Stem; DB-7238; Lat-26.096, Lon-92.265] is orally prescribed to chew raw for 5 days in suffering from the disease condition. The dose prescription as 5 piece of 5 finger size for 1st day; 4 piece of 4 finger size for 2nd day; 3 piece of 3 finger size for 3rd day; 2 piece of 2 finger size for 4th day; and 1 piece of 1 finger size for 5th day should be followed.

**DISCUSSION**

The present medico-ethnobotanical survey results into report of 9 disease conditions covering 10 medico-ethnobotanical claims from the study area among which 2 are of compound formulations. Population of the region belongs to Tiwa, Karbi, and some Nepali people with plain Assamese tribes who were interviewed to document these claims. Documentation of these claims in Sunaikuchi RF results into report of seven medicinal plants under seven genera represented by six families and in Khulahat RF results into report of six medicinal plants under six genera represented by six families. These plants are sporadic in the forest areas and are collected by local healers as and when required. Many of the reported plants are similarly indicated for specific disease conditions in various traditional systems of medicines.
Folklore claims documented from Sunaikuchi RF includes five claims prescribed by folk healers and verified by local residents. Bark of *C. verum* is prescribed in insect bite, however, unspecified about the type of insect by the claimant. The antispasmodic property of the plant may help in relieve the spasm of muscle during insect bite. Leaf juice of *F. indica* is reported for its use in ear discharge and is also mentioned to possess stambhan action in Ayurvedic system of medicine. Review on this plant does not result into any information on use for ear discharge. Seed oil of *A. mexicana* prescribed in stomach pain has well-documented use in severe stomach pain and reported as stomachic. In a compound formulation for bone fracture, three ingredients are reported, where local application of stem of *C. quadrangularis* is well recognized in Ayurvedic system of medicine; application of roots of *C. campanulata* has similar indication in Ayurveda and application of bark of *L. glutinosa* was not previously reported and hence, perhaps may be considered as new information from field. Root piece of *G. pentaphylla* is reported to be locally applied in lower abdomen for easy delivery during child birth. Review on uses showed that roots were used in India against facial inflammation, rheumatism, jaundice, and anemia. The root, stem, and leaf of this plant are used in folklore medicine in Kerala and Tamil Nadu to cure fever, rheumatism, etc. Also, crushed root piece mixed in water is administered in empty stomach in the morning to cure stomach pain and roots pounded and mixed with sugar are given in low fever and the wood of this plant has also traditionally been used to treat snakebite or to aid in appetite enhancement for women after childbirth.

Folklore claims documented from Khulahat RF includes five claims prescribed by folk healers and verified by local residents. Root bark of *P. procera* is prescribed along with fruits of *P. nigrum* in dog bite, which is almost similarly reported to be used against snakebite and have effective action. Young twig and leaves of *C. fistula* are prescribed in jaundice where it is mentioned as effective in liver diseases and different parts are used in jaundice. Stem part of *C. speciosus* is prescribed in piles, whereas rhizome is prescribed for various other illness including different digestive troubles and have strong muscular spasmodic effect in both animals and human which may be considered as a corroborative action of the folk claim. Stem bark of *O. indicum* is prescribed against wound healing which may be a new report as some other indications were reported for stem bark except wound healing. Aerial parts of *F. indica* are prescribed for stomach pain which is perhaps a less reported plant and reported to be stambhan having some similar indication with the claim.

**Conclusion**

The study results into report of 12 folklore medicinal plants used by local tribes of forest areas of Morigaon district of Assam. Various folklore indications are similar with traditional indications of these plants in various system of medicine including Ayurveda. These folk claims may be further validated with detail study along with experimental screening.

**Acknowledgments**

The authors are thankful to the Director General and Deputy Director General, Central Council for Research in Ayurvedic Sciences, New Delhi for encouragement and financial support during the survey. Authors are also indebted to the folk healers, particularly Sh. Neela Bangthai (45, male) of Sunaikuchi village, PO. Amlighat (PIN-782413) and Sh. Dutna Maslai (46, male) of Ghagra village, PO. Beltola under Nellie Thana (PIN-782425) in Morigaon district of Assam for providing important information related to the medicinal plants and practices of the area.

**References**

हिंदी सारांश

असम के मोरीगांव जिले में सुनाइकुची और खुलाहाट रिजर्व फॉरेस्ट से मेडिको-एथनोबोटनिकल दावे

उद्देश्य: वर्तमान अध्ययन असम के मोरीगांव जिले के सुनाइकुची और खुलाहाट रिजर्व फॉरेस्ट और उसके आसपास के क्षेत्रों में दिए गए सर्वेक्षण के दौरान प्रलेखित मेडिको-एथनोबोटनिकल दावे और लोक औषधियों पदार्थों की प्रतिवेदन से संबंधित है।

सामग्री और विधियाँ: अध्ययन क्षेत्र में क्षेत्र सर्वेक्षण किए गए जहां मेडिको-एथनोबोटनिकल जानकारी के प्रलेखन हेतु लोक विशेषज्ञों का साक्षात्कार किया गया। प्रतिवेदित लोक पादय नमूने एकत्रित किए गए उनकी पहचान की गई एवं संरक्षित किया गया।

परिणाम: प्रतिवेदित लोक दावों में 11 परिवारों के प्रतिनिधियों वाले 12 जनरा के अंतर्गत 12 औषधियों पदार्थों से पुकार 9 रोग अवस्थाओं के लिए 10 मेडिको-एथनोबोटनिकल दावे शामिल हैं। लोक दावों के अभिम विधिमान्यकरण हेतु प्रलेखित लोक-औषधीय पदार्थों के प्रति विशिष्टिक की पारंपरिक पद्धति में संबंधित प्रजातियों के उपयोगों की समीक्षा की गई है।

निष्कर्ष: लोक पदार्थों का अभिम विधिमान्यकरण और प्रयोगात्मक जांच हेतु सुझाव गया है।

महत्व: पारंपरिक विशिष्टिक पद्धति के उपयोग के साथ सुधार हेतु लोक प्रवतित पदार्थों के उपयोग के पुष्टि करेगा।

मुख्य शब्द: असम, लोक पादय, मेडिको-एथनोबोटनिकल दावे, मोरीगांव, आयुर्वेद, सुनाइकुची और खुलाहाट।