



Enumeration of ethno-medicinal plants in Rongram Block of West Garo Hills District, Meghalaya

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A study was conducted to enumerate the ethno-medicinal plants in Rongram block of West Garo Hills District, Meghalaya. The study was based on the primary survey and data collected through questionnaires, focus-group discussions and semi-structured interviews prepared for the purpose by approaching the local traditional healers (*oja*) as well as villagers. The study revealed that a total of 18 medicinal plants belonging to 18 genera and 16 families were documented. Information on local names, scientific names, family, plant parts used and traditional usage of these plants were also reported. Among the documented medicinal plant species, trees were most frequently used followed by herbs, shrubs and climbers. The study also revealed that leaves were most commonly used in the treatment followed by the bark.

Key words: Ethnomedicine; *Oja*; Rongram block; West Garo Hills

Received 01 December 2017
Accepted 21 February 2018

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Introduction

The survey on ethno-botanical knowledge possess as a part of living cultural knowledge and practice between the communities before the traditional cultures are exploited by modern societies. Ethno-medicines and medicinal plants of Meghalaya have received some attention of researcher.^{1,2} Search for new medicines for the prevention and cure of deadly diseases provides prospects for developing medicinal plants. It therefore, behoves us to push forward, along with ethno-botanical investigation, studies on the flora in general.³⁻⁶

Meghalaya is regarded “the abode of clouds” situated in the north-eastern Himalayan region of India. Geographically, it is located between 20.1°N and 26.5°N latitude and 85.49°E and 92.52°E longitude and covers an area of about

22,429 square kilometres.

There are limited studies on the different aspects of medicinal plants and their role in West Garo Hills District of Meghalaya. The purpose of the study was not only the collection of first-hand information about the relationship of medicinal plants with the community but also to verify the already published data wherever possible. Therefore, the present study has taken up to identify the common medicinal plants growing in this area, their practices and pattern of utilization by the people in West Garo Hills District.

Materials and Methods

Study Area

A survey was conducted in Rongram Devel-



Figure 1 | Map of West Garo Hills District.

opmental Block which is administered by the West Garo Hills District Meghalaya. It is situated approximately between the latitudes $90^{\circ}30'$ and $89^{\circ}40'E$, and the longitudes of 26° and $25^{\circ}20'N$ and has an area of 3,677 sq. km. West Garo Hills district is essentially a hilly and tribal area and as per 2011 census (provisional), the population of the district is 6,42,923 with male population of

3,24,900 and female population of 3,18,023. The population is pre-dominantly inhabited by the Garo people, a tribe with a matrilineal society. The district is mostly hilly with plains fringing the northern, western and south-western borders. The climate of the district is largely controlled by south-west monsoon and seasonal winds. The district being relatively lower in alti-

Table 1 | Plant species and their evaluation.

Sl. No	Name of the species/ Voucher no. from BSI	Vernacular Name (Garó)	Family	Habit	Diseases	Parts used	Formulations
1	<i>Aloe barbadensis</i> Miller-25363	Krito kumari	Liliaceae	Herb	Burns	Leaves	Leaves are to be crushed and make a good paste and can be directly applied to the affected parts of the body till the injury is healed.
2	<i>Asparagus officinalis</i> Willd.-50911	Me'mang ta'matchi	Liliaceae	Shrub	UTI, jaundice, liver problems, blood pressure	Whole plant	a) Decoction of root is used against an UTI and to lower blood pressure. b) An infusion of whole plant is used to treat jaundice and liver problems.
3	<i>Careya arborea</i> Roxb.-46304	Gimbil	Lecythidaceae	Tree	Nerve problems, internal bleeding, local syrup	Bark	Decoction of the bark is taken orally against the internal bleedings and nerve problems. And is also used as local syrup for an ecchymosis.
4	<i>Centella asiatica</i> L.-73103	Manamuni	Apiaceae	Herb	Cuts, bleeding, UTI	Whole plant	a) Juice is extracted from leaves which can be taken orally to cease bleeding from cuts and bleeding after delivery in women. b) Decoction of roots is used against UTI.
5	<i>Chromolaena odorata</i> (L.) King-46623	Sambangguri/ Amok	Asteraceae	Shrub	Cuts, wounds	Leaves, shoots	a) The juice or paste of the crushed leaves is applied externally on fresh cuts and wounds.
6	<i>Clerodendrum infortunatum</i> , L-22475	Sammaki/Do' dimdim	Verbenaceae	Shrub	Leucoderma	Roots	Roots are pounded on a stone and make a good paste. The paste can be applied to the affected parts of the body.
7	<i>Curcuma amada</i> Roxb-19286	Dikge te'gatchu	Zingiberaceae	Herb	Food poisoning, Stomachache	Rhizome	Rhizome can be directly eaten as raw.
8	<i>Ficus hispida</i> Linn-28122	Kan'tap	Moraceae	Tree	Ringworms	Leaves	Leaves are used to scrub the affected parts of the body. And paste made from leaves can also be applied to the affected parts externally.
9	<i>Flacourtia jangomas</i> (Lour.)-1247	Darechik	Flacourtiaceae	Shrub	Ecchymosis	Fruits	Juice are extracted from the fully ripen fruits. The juice can be taken at 2 teaspoonsful twice a day after food.
10	<i>Mangifera indica</i> L-24904	Te'gatchu	Anacardiaceae	Tree	Dropsy	Bark	Decoction of the bark can be drink at 1 glass twice daily after food.
11	<i>Momordica charantia</i> L-62912	Kerala	Cucurbitaceae	Climber	Diabetes, rheumatism	Fruits	Juice is extracted by grinding the fruits. Juice can be taken at 5 teaspoonsful once in a day till the sugar content is brought to normal level. For rheumatism juice can be taken thrice in a day.
12	<i>Oroxylum indicum</i> Vent-16318	Kering	Bignoniaceae	Tree	UTI and Diarrhoea	Leaves and Barks	a) Leaves are taken as vegetables against the UTI. b) Juice is extracted by grinding the barks. The juice can be taken at 1 cup twice in a day till the patient recovers.

13 <i>Phyllanthus urinaria</i> Linn-23423	Me'mang ambri	Euphorbiaceae	Herb	Jaundice	Whole plant	Decoction of leaves, roots and seeds/fruits can be taken at 1 cup twice a day after food.
14 <i>Punica granatum</i> L-11772	Dallim	Puniaceae	Tree	Malaria	Bark	a) Decoction of the bark along with barks of <i>Delonix regia</i> (B.Hook) and <i>Astonia scholaris</i> Linn.R.Br. can be taken at 3 cups per day against malaria.
15 <i>Rhus semialata</i> Miller-71759	Kitma	Anacardiaceae	Tree	Skin diseases	Seeds	Seeds are to be crushed and can be taken orally by adding water at 1 glass daily.
16 <i>Scoparia dulcis</i> L-61168	Me'mang te'brong/Sam e kireng/Sangolak	Scrophurialiacea	Herb	Antiulcer, antipyretic, cancer	Leaves	Decoction of the leaves can be taken at 2 teaspoonful twice daily.
17 <i>Terminalia bellirica</i> Roxb-18249	Chirore	Combretaceae	Tree	Asthma	Fruits	Fruits can be eaten as raw.
18 <i>Zanthoxylum budrunga</i> Roxb.-22638	Me'cheng	Rutaceae	Tree	Mumps	Leaves and seeds	Leaves are pounded and make a good paste and the paste can be used as a massage service to the affected area (in that paste <i>Zingiber officinalis</i> Roscoe and mustard oil is added)

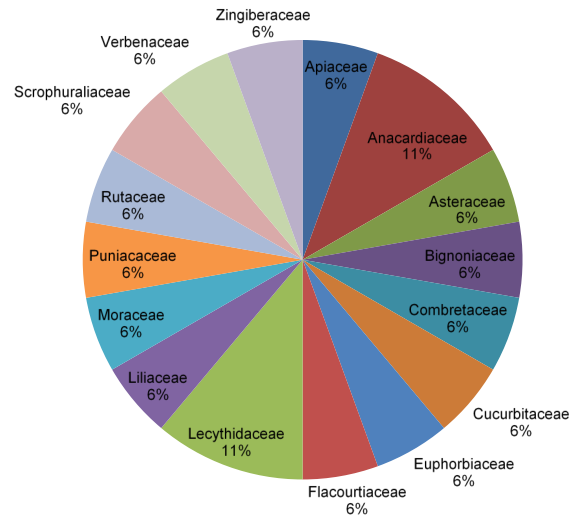


Figure 2 | Family-wise species arrangement of plant species in percentage (%).

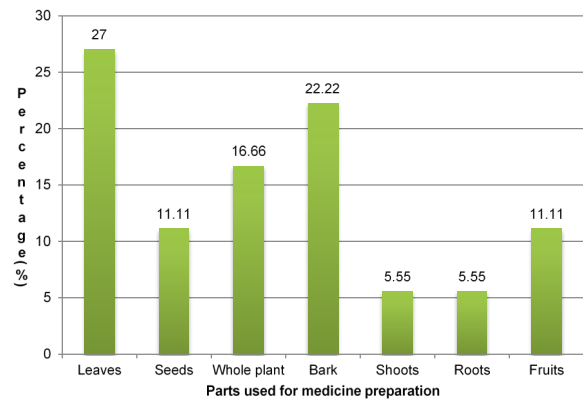


Figure 3 | Bar diagram showing plant parts used for various ailments.

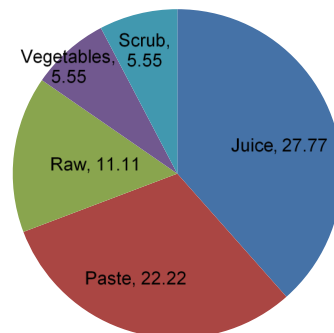


Figure 4 | Showing mode of application of ethno-medical plants (%).

tude to the rest of Meghalaya, experiencing fairly high temperature for most part of the year. The average rainfall is 330 cm of which more than two-thirds occur during the monsoon, winter being practically dry. The district has mostly dense tropical mixed forest, and a small patch of temperate forest in the higher parts of the Tura range.

Methodology

Preliminary survey and data were collected during 2014-2016 by filling up the questionnaire, personal interviews with the real practitioners or *oja*, knowledgeable persons of men, women and young folks who use their knowledge of medicinal plants. A total of 15 individuals from 14 villages were interviewed who were identified with the help of local administrators and community leaders. The collected specimens were identified with the help of literature and by using various floras and monographs including regional flora and the data collected were compared and cross checked with other recommended literature.⁷ Collected specimens were identified with the help of Botanical Survey of India, Shillong (voucher numbers are given in the Table 1 followed by botanical name of each species)

Results

A total of 18 medicinal plant species belonging to 18 genera and 16 families, which are used in the treatment of different diseases have been documented. The study based on the plant parts used had revealed that leaves (27%) were most commonly used in the treatment like cancer, antiulcer, antipyretic, skin diseases, urinary tract infection, burns, cuts and wounds, followed by bark (22.22%), whole plant (16.66%), fruits and seeds (11.11%), shoots and roots (5.55%). In the study, trees (8 species) were recorded to have highly used potential followed by herbs (5 species) which can cure extensive range of diseases. The survey also found out that some plants such as *Asparagus officinalis* Willd., *Careya arborea* Roxb., *Scoparia dulcis* L., has one or more

ethno-medicinal uses. In terms of medicinal preparations, people mostly used by decoction (38.88%) and followed by juice (27%), paste (22.22%), raw and infusion (11.11%), as vegetables and scrub (5.55%). Traditional healers recommended dosage of a particular recipe differently and also on the severity of the ailment and with the patients age. Dosages were estimated using the spoon, cups, glasses and the frequency of treatment depended on the disease and level of its severity.

Discussion

This data is the first hand information of ethno-medicinal plants from Rongram Developmental Block of West Garo Hills District Meghalaya. The healers claimed that their herbal remedies have a high potential to cure different diseases. And also sometimes the local healers used combination with other plants and in such cases, the study emphasized to scientific validation of the reported species through phytochemical analysis as the information given by the practitioners may not always be a reliable one. It was also explored that some of the traditional healers have developed their own herbal garden for use of these fresh drugs for treatment. The study also brought to light that some of the traditional healers or *oja* often do not want to disclose their knowledge fully though they have rich accumulation of knowledge on medicinal plants. This may be because of their lack of education or unaware of preservation of traditional knowledge system. Since the ethno-botanical information is declining day by day and with generations, so it is a high time to strengthen and document and also to evaluate this traditional information before they are completely lost.

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