

## **ETHNOMEDICINES USED BY MRO TRIBES IN KYAUK-TAW TOWNSHIP, NORTHERN RAKHINE STATE FOR GASTROINTESTINAL DISORDER**

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### **Abstract**

An ethnobotanical survey was carried out to collect information on the uses of medicinal plants in Kyauktaw Township, northern Rakhine State. Information presented in this paper was gathered from the Mro tribes using an integrated approach of botanical collections, group discussions and interview with semi-structured questionnaires during the years 2005-2007. Informants of the study area were randomly selected and interviewed with the help of translators to gather information on the knowledge and uses of medicinal plants used as a remedy for gastrointestinal disorder on the study area. A total of 49 ethnomedicinal plant species distributed in 27 families are documented for curing gastrointestinal disorder in this study. The medicinal plants used by Mro tribes are listed in use of Latin name, family name, local name, parts used, mode of preparation and medicinal uses (Table 1). Generally, fresh part of plant was used for the preparation of medicine. Medicinal plants were readily available throughout the year and plentiful in the reserved forest. The results of this study have shown that these people still depend on traditional medicinal plants in Kyauk-taw Township forest area.

### **Introduction**

Globally, about 85% of the traditional medicines used for primary health-care are derived from plants (WHO, 2002; Wilson, 2004). Traditional medicine and ethnomedicinal information play an important role in scientific research, particularly when the literatures and field work data have been popularly evaluated (Azaizeh, 2003). Allopathic medicine may cure a wide range of diseases, however, its high prices and side-effects are causing many people to return to herbal medicines which have fewer side effects. Information in the use of plant species for therapeutic plants has started to decline due to the the lack of recognition by younger generation as a result of shift in attitude and ongoing socio-economic changes. Furthermore, the indigenous plants are also rapidly declining in the traditional knowledge of many valuable plants. In many developing countries, scientific investigations of medicinal plants have been initiated because of their contribution to healthcare. Herbal medicines have good values in treating many infectious diseases and gastrointestinal diseases, etc. (Phillips. et al., 1994). The indigenous people of the study area are called Mro tribe. They are found in the rural area of Sittway and Maungdaw District. Mro tribe is one of the indigenous races of Rakhine State, Myanmar. Mro constitutes relatively small group which represent the 1.01 % of the total population of Rakhine State.

Physically they are similar to the Chin and other Rakhine tribal communities. Historically, these tribal communities have survived on their traditional Knowledge base. Traditional medicines are primary healthcare resources for the Mro tribes to protect their health. Tribal practitioners are curators of the tribal society and they have a good knowledge of medicinal plants, diseases and treatment using plants.

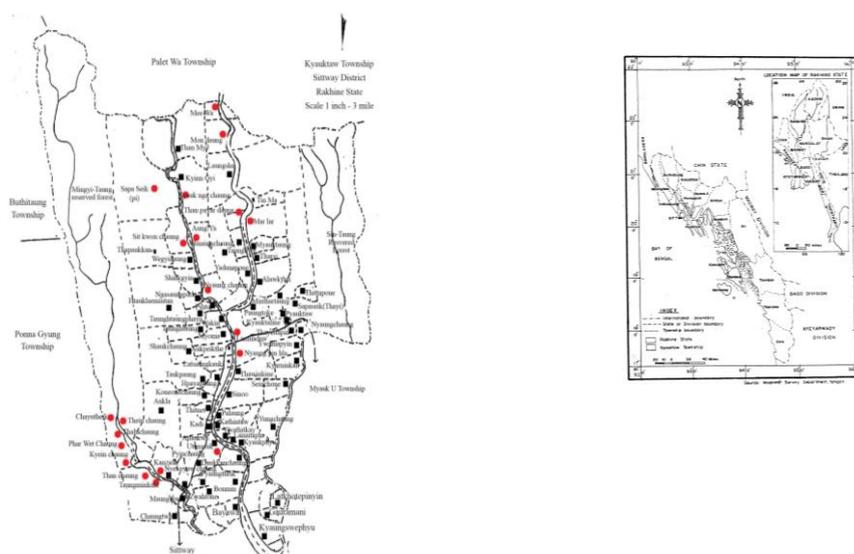
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## Methods

### Description of the study area

The study area includes Kyauk-taw Township, Sittway District. It is located between 20°35' and 21°13' North Latitudes and 92°42' and 93°10' East Longitudes and is contiguous with Palet-wa Township at the north and northeast, Mrauk – U Township at the east, Ponna-gyun Township at the south and west, and Buthi-daung Township at the north west. The area cover is 675.55 square miles (432352 Acres) representing 4.76 percent of Rakhine State. Being located in the northern part of Rakhine State, Kyauk-taw Township is under the influence of monsoon air mass. The township receives abundant rainfall as it is situated in Northern Rakhine Coast of Rakhine State. Meant monthly maximum temperature is 93.38° F in April and 58.46° F in January. More than half of the total township area is covered with natural vegetation due to the fact that this township receives heavy rainfall of more than 150 inches.



**Fig (1) Studied area of Kyauk-taw Township**

### Ethnobotanical survey

The field work was conducted in several villages around Kyauk-taw Township forest area during 2005-2007. During the Survey period, the medicinal plants information has been gathered from the tribal practitioners and non-practitioners using semi-structured questionnaires on the types of ailment cured by the traditional medicinal plants and plants parts used in curing gastrointestinal disorder (Table 1). In these period, door to door visits was made in order to attempt to identify local people with a specialized knowledge of medicinal plant used. These are 90 informants (58 males and 32 females) between the ages of 25-92 in the study area. Among them 12 are tribal practitioners (8 males and 4 females).

### Study Design and Methodology

Ethnobotanical data were (local name, mode of preparation, medicinal uses) were collected through questionnaires, interviews and group discussion among the local informants and tribal practitioners in their local language. The questionnaires allowed descriptive responses on the plant prescribed, such as part of plant used, medicinal

uses, detailed information about mode of preparation (i.e. decoction, paste, powder and infusion), and form of usage either fresh or dried and mixtures of other plants used as ingredients. Since there is lack of comprehensive records on floral diversity of northern Rakhine State, the plant specimens were identified through available floral inventories (Hooker, 1875; Backer, 1963; Kurz, 1974; Kirtikar & Basu, 1984; Dassanayake, 1998; Lemmens & Bunyapraphatsara, 1999; Valkenburg & Bunyapraphatsara, 2002; Lemmens & Bunyapraphatsara, 2003 and Kress. et al., 2003). The collected specimens were kept in the herbarium of Botany Department, University of Yangon.

## Result and Discussion

Table 1 data obtained from the field survey are presented. In this study 49 plant species belonging to 27 families distributed in 46 genera have been recorded. These contribute to 15 remedies. Many species of the family Asteraceae are frequently used (8 remedies from 7 species); the Verbenaceae and Euphorbiaceae contribute (4 remedies from 4 species). As seen in Table 1, common gastrointestinal complaints in the study area were dysentery (from 22 species belonging to 16 families) and diarrhea (from 13 species belonging to 8 families). This tribal people were using 7 species for laxative, 5 species for anthelmintic, 4 species for purgative, 4 species for carminative, 4 species for constipation, 3 species for dyspepsia, 3 species for appetizer, 2 species for food poisoning and 1 species for colic and gastritic.

Different parts of the medicinal plants were used as medicine by local practitioner. The most frequently utilized plant part was leaf (32.25%) and followed by root (19.35%) and fruit (11.29%). The use of above ground plant parts (77.48%) was higher than the under-ground plant parts (22.58%). The most frequently used methods to treat 15 ailments are decoction (34.42%), infusion (19.67%) and paste (16.39%). The remedies are taken with water, rice water, honey, sugar jaggaries and salt. The measurements used to determine the dosage are not standardized and depend on the age and physical appearance of the patients, socio-cultural explanation of the illness, diagnosis and experience of individual practitioners. Children are given less than adult, such as one fourth of the tea-cup or one tea-spoon, (1ml to 5 ml), adult is given up to one tea cup (150 ml) depending on the type of illness and treatment. The quantity of plant part used is measured by number of leaves, seeds and fruits and ticals, for example, 5-6 young leaves of *Clerodendrum infortunatum* Gaertn are used do treat diarrhoea and dysentery. The frequency of treatment depends on the types of illness and severity. In polyherbal medicines, each medicinal plant is dried, powdered and store separately, and the amount taken for each for any given disease varies. Leaves of *Acacia concinna* Willd DC. *Acrocephalus* sp, *Buhinia purpurea* L., *Senna tora* (L.) Roxb., fruits of *Dillenia pentagyna* Roxb., *Moringa pterygosperma* Gartn., *Piper nigrum* L., *Phyllanthus embilica* L., *Oroxylum indicum* (L.) Kurz. are used as edible plants by these tribal people of the study area. There are two types of tribal practitioners found in the study area namely herbalists and ritualists. Herbalists treat patient only by using plant resources. They diagnose diseases based on their personal experience in treating human ailments. Ritualists believe that specific spirit causes ailments. In such cases the preparation of remedies contains the normal recipes accompanied by rituals and music.

Tribal practitioners use specific plant parts and specific dosages for the treatment of ailments. The plant products are consumed raw or in the form of

decoction, as infusion for oral treatment and ointments or raw paste when applied externally. The paste of the plant most used for medicinal purposes are leaves, roots, fruits, whole plants, flowers, bark, shoots, seeds and rhizome in decreasing order. Internal uses are predominating over external cases. Decoction, infusion (usually mix with water, salt or sugar), poultice and paste are the main methods of preparation, either for oral or for external administration. Generally fresh part of the plant is used for the preparation of medicine. When fresh plant parts are not available, dried parts are also used. Majority of medicinal plants are used as simple drugs and some plants are used as some other plant parts.

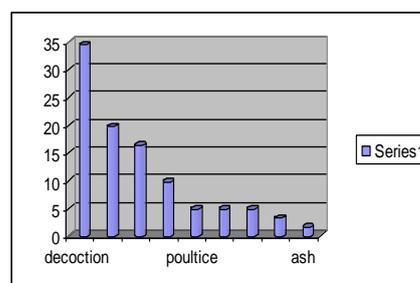
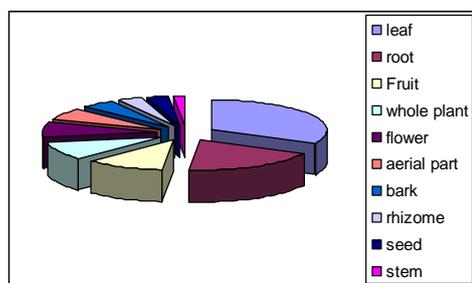


Fig. 2. Comparison of parts used Fig. 3. Comparison of preparation methods

### Conclusion

This study shows that knowledge and usage of herbal medicine for the treatment of gastrointestinal complaints among Mro tribes is still a major part of their life and culture. They use forest plants, weeds, fruits plants, vegetables, spices and many others as traditional medicine. *Acacia farnesiana* (L.) Willd., *Agaratum conyzoides* L., *Blumea balsamifera* (L.) Dc., *Caesalpinia* sp., *Clerodendrum infortunatum* L., *Curcuma amarresima* Rose., *Elephantopus scaber* L., *Phycnarrhena manillensis* S. Vadal are the leading species used as remedies against a variety of complaints.

The data collected show that majority of remedies are taken orally. Most of the reported preparations are drawn from a single plant; mixtures are used rarely. Generally, the people of the study area still have a strong belief in the efficacy and success of herbal medicine. The results of the present study provide evidence that medicinal plants continue to play an important role in the healthcare system of this tribal community.

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**Table (1) Traditional Medicinal Plant Species with botanical name, families, part used, common name, Mro name and ailment**

No.	Scientific Name	Family	Parts used	Common Name	Myo Name	Preparation	Diseases
1	<i>Abroma angusta</i> L	Sterculariaceae	flower	Galon-yaza	Galon-yaza	infusion	flatulence
2	<i>Acasia concinna</i> Willd. DC.	Mimosaceae	pod, seed, leaves	Kimonchin	In-hi-sat	decoction	purgative, biliousness, constipation
3	<i>Acacia farnesiana</i> (L.) Willd.	Mimosaceae	bark	Nan lon-kyaing	Awaya-awa	paste	anthelmintic, antidyenteric
4	<i>Acmella mauritanica</i> ich ex Pers.	Asteraceae	whole plant	Be'-U-beset	In-whar-toon	decoction	dysentery
5	<i>Acrocephalus</i> sp.	Lamiaceae	leaves	not known	Bla- saunt-net	poultice	flatulence
6	<i>Ageratum conyzoides</i> L.	Asteraceae	leaves, shoot	Khway-thay-pan	Phet- loun-ka-zauk	poultice, con: infusion	flatulence, diarrhoea, dysentery
7	<i>Amaranthus spinosus</i> L.	Amaranthaceae	leaves,root	Hinunwe-subauk	not known	boiled	laxative
8	<i>Artocarpus heterophyllum</i> Lam.	Moraceae	fruit	Pein-ne`	Kazan-kone	boiled, fresh	laxative, constipation
9	<i>Azadiarchta indica</i> A. Juss	Meliaceae	leaves, twig, bark	Tamar	Tamar	infusion, powdered	flatulence, vermifuge
10	<i>Bauhinia purpurea</i> L.	Caesalpiniaceae	flower	Swe-taw-ni	Htin-sha-ni	decoction paste	anti-diarrhoeal laxative
11	<i>Blumea balsamifera</i> (L.) Dc.	Asteraceae	root, bark	Phone-ma-thein	Sa-mu-sat- lat	paste ash	carminative, , flatulence diarrhoea, dysentery
12	<i>Caesalpina</i> sp.	Caesalpiniaceae	root	Unknown	Inmay-paw	paste	antidiarrhoeal, flatulence
13	<i>Calotropis gigantea</i> (L) Ait.	Asclepiadaceae	fruit	Mayo	Ma hta-si-kone	powdered	anthelmintic
14	<i>Cardiospermum halicacabum</i> L.	Sapindaceae	leaves	Kalar-myet-si	not known	infusion	dysentery, diarrhoea
15	<i>Cassia fistula</i> L	Caesalpiniaceae	leaves, root	Ngu	Ki- kaw-kone	powdered decoction	purgative carminative,appetizer
16	<i>Clerodendurm infortunatum</i> L.	Verbenaceae	leaves	Kha-ohn	I-A-you-ywet-kone	infusion, chewing	dysentery, diarrhoea

No.	Scientific Name	Family	Parts used	Common Name	Myo Name	Preparation	Diseases
17	<i>Clerodendrum</i> sp.	Verbenaceae	root, leaves	Unknown	Taya-tapa	paste	food poisoning
18	<i>Clitoria ternatea</i> L.	Fabaceae	flower	Aung menyo	In-ma-non	decoction	carminative
19	<i>Crateva magna</i> (Lour.) DC.	Capparaceae	leaves	Kadet	In-htat-kone	combination	appetizer
20	<i>Croton oblongifolius</i> Roxb.	Euphorbiaceae	root	Thet-yin-gyi	S-ran- kone	poultice	dyspepsia
21	<i>Curcuma amarresima</i> Rose.	Zingiberaceae	rhizome	Nanwin-kha	Na-nwin-kha	paste	diarrhoea, dysentery
22	<i>Cuscuta reflexa</i> Roxb.	Convolvulaceae	whole plant	Shwe-nwe	Shwe-nwe	decoction	anthelmintic, carminative
23	<i>Dillenia indica</i> L.	Dilleniaceae	fruit	Zin-pyun	In-yay-htat	fresh	laxative, purgative
24	<i>Eclipta alba</i> (L.) Hassk.	Asteraceae	leaves, W.P	Kyaik-hman	Kasa-kanu	combination	constipation,diarrhoea
25	<i>Elephantopus scaber</i> L.	Asteraceae	whole plant leaves	Ka-tupin	Nga-pyay-shin	decoction infusion	diarrhoea, dysentery anthelmintic
26	<i>Enhydra fluctuans</i> Lour.	Asteraceae	Leaves	Kana phaw	not known	infusion	laxative
27	<i>Euphorbia hirta</i> L	Euphorbiaceae	whole plant	Sate-noe	Sate-ma-noe-yee	infusion	dysentery
28	<i>Heliotropium indicum</i> L	Boraginaceae	whole plant	Sinna- maung	not known	decoction	dysentery
29	<i>Holarrhena antidysenterica</i> Wall.	Apocynaceae	bark	Let-htwe- gyi	On-twee-ahei	decoction	antidysenteric
30	<i>Ixora coccinea</i> L	Rubiaceae	leaves	Pone-na- yiek	Boak-ta-loke	fresh	diarrhoea, dysentery
31	<i>Leucaena leucocephala</i> (Lam.) de Wit.	Mimosaceae	pod	Baw-sa- kaing	Awa-ya-A-phyu	decoction	dysentery
32	<i>Ludwigia hyssopifolia</i> (G. Don) Exell	Onagraceae	aerial part	Taw-lay- nyin	not known	decoction	dysentery

No.	Scientific Name	Family	Parts used	Common Name	Myo Name	Preparation	Diseases
33	<i>Melastoma malabathricum</i> L.	Melastomataceae	leaves	Say-ore-boke	Wa-aye-ma-son-kone	infusion, decoction	diarrhoea, dysentery
34	<i>Millingtonia hortensis</i> L.f.	Bignoniaceae	root	E-ga-yit	Kanay-kadein	paste	food poisoning
35	<i>Morinda angustifolia</i> Roxb.	Rubiaceae	leaves root	Ye-yo	Kyeik-ma-kyeik-kone	decoction paste	dysentery, diarrhoea laxative
36	<i>Oroxylum indicum</i> (L.) Kurz.	Bignoniaceae	fruit	Kyaung-sha	Wa-aye-ma-laung	combination	appetizer
39	<i>Paederia tomentosa</i> Blume.	Rubiaceae	leaves	Pe-bok-new	Say-ga-na-poke	infusion, decoction	flatulence, dysentery
40	<i>Phyllanthus emblica</i> L.	Euphorbiaceae	shoot	Zi-phyu	Kalone-kone	infusion	purgative
41	<i>Plumeria rubra</i> L.	Apocynaceae	flower	Tayote-sakar-ni	A-ta-loi-kone	boiled	carminative
42	<i>Pycnarrhena manillensis</i> S. Vadal	Menispermaceae	leaves	Unknown	Ma-khue-lie-yon	infusion	diarrhoea, dysentery
43	<i>Quisqualis indica</i> L.	Combretaceae	leaves	Hta-wai-hmine	Hta-wai-hmine	fresh decoction	antidysenteric flatulence
44	<i>Senna alata</i> (L.) Roxb.	Caesalpiniaceae	leaves	Pwe-kaing	Sa-ki-ka-seik	chewing	laxative
45	<i>Solanum trilobatum</i> L.	Solanaceae	root	Ka-zaw-khar	La-mae-khar	paste	flatulence
46	<i>Solanum violaceum</i> Ortesa.	Solanaceae	root fruit	Kayan-ka-zaw	La-pie-khar	paste fresh	flatulence dyspepsia
47	<i>Sphaeranthus indicus</i> L.	Asteraceae	root, seed	Unknown	Paraw-ga-kone	infusion	anthelmintic
48	<i>Tinospora cordifolia</i> Willd, Hook f. & thorn	Menispermaceae	root, stem	Sin-tone-manwe	Armi-soket	paste	flatulence
49	<i>Zingiber ligulatum</i> Roxb.	Zingiberaceae	Rhizome	Unknown	In-kar-htat-kone	decoction	gastritis

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