The Study of Ethnomedicinal Plants Used by of Rakhine Tribes in Taunggoke Township

Ohn Mar Kyaw[1], Yadanar Thiri Phyu[2], Than Than Htet[3], Su Thet Yi[4]

ABSTRACT

Traditional medicine plays an important role in primary healthcare of people in treating various types of ailments in living beings. This paper deals with the observations on ethnomedicinal uses of wild plants by the Rakhine tribes of villages surrounding the Taunggoke Township Areas of Thandew District, Southern Rakhine State, Myanmar. Data were collected by interviewing Rakhine medicine men and knowledgeable people with the help of semi-structured and open-ended questionnaire.This paper describes the traditional knowledge related to ethnomedicinal knowledge and plant parts utilization for curing various ailments by Rakhine ethnic community. Total 7 plants were identified belonging to 6 families used by the Rakhine community to tsed different ailments. These medicinal plants were mostly used for treatment of anemia, asthma, cough, cold, constipation, diabetes, diarrhea, diuretic, dysentery, expectorant, eye injury/ infection, fever, gout, headache, itches, laxative, rheumatism, ringworm, skin diseases, stomach problem, toothache, tumors, urinary problem, wounds and others. Leaves were mostly used (29%), fruits (18%), latex, flowers and seeds (12%) and along with whole plants, rhizome and root.

INTRODUCTION

Ethnomedicine is a study or comparison of the traditional medicine practiced by various ethnic groups, and especially by indigenous people. Ethnomedical research is interdisciplinary; in its study of traditional medicines, it applies the methods of ethnobotany and medical anthropology. Anthropological studies examine the cultural perception and context of a traditional medicine (Phillipson 1991).

Ethnomedicine has evolved over the millennia of human existence, and has ever been exhibited by dogs, cats and wild animals that eat specific grasses, roots and other parts of the the plant to relieve pain, supply diet and help cure diseases. The use of plants and plants products as medicine can be traced as far back as the beginning of human civilization. The earliest record of medicinal plant used in the Himalayas is found in the Rigveda which is supposed to be the oldest repository of human knowledge and describes 67 plants. After the Rigveda, Ayurveda, describes the medicinal importance of 1200 plants (Chopra, 1958).

Often, the medicinal traditions are preserved only by oral tradition. According to the survey of World Health organization, the practitioners of traditional systems of medicine treat about 80 % of patients in India, 85 % in Myanmar and 90 % Bangladesh (WHO,1993).

[1] Dr, Associate Professor, Department of Botany, Taunggoke Degree College
[2] Demonstrator, Department of Botany, Taunggoke Degree College
[3] Demonstrator, Department of Botany, Taunggoke Degree College
[4] Demonstrator, Department of Botany, Taunggoke Degree College

The components of ethnomedicine have long been ignored by biomedical practitioners for various reasons. For example, the chemical composition, dosages and toxicity of the plants used in ethnomedicine are not clearly defined (WHO, 2002).

Today about 80% of the world's population relay predominantly on plant and plant extracts for healthcare. The spiritual aspects of health and sickness have been an integral component of the ethnomedicinal practice for centuries and a dimension ignored by biomedicine practitioners because of the difficulties involved in validating its success using scientific principles and experiments. Today, ethnomedical practices and beliefs are part of a total belief system that transcends class; ethnicity and religious belief in such a manner that the terms "folk or traditional" can be used to describe that are truly universal (Kannel, 1979 and King *et al*., 1995).

Ethnomedicine refers to the study of traditional medical practice which is concerned with the cultural interpretation of health, diseases and illness and also addresses the healthcare seeking process and healing practices (Krippner, 2003).

The practice of ethnomedicine is a complex multi-disciplinary system constituting the use of plants, the natural environment and has been the source of healing for people millennia. Research interest and activities in the area of ethnomedicine have increased tremendously in the last decade. The components of ethnomedicine have long been ignored by many biomedical practitioners for various reasons. For example, the chemical composition, dosages and toxicity of the plants used in ethnomedicine are not clearly defined (Lowe, 2000).

Some outstanding medicinal drugs which have been developed from the ethnomedicinal uses of plants include: vinblastine and vincristine from *Catharanthus roseus* L. (the periwinkle) used for treating acute lymphoma, acute leukaemias *etc*, Today about 80% of the world's population rely predominantly on plants and plant extracts for healthcare (Setzer,2006).

Today, ethnomedical practices and beliefs are part of a total belief system that transcends class, ethnicity and religious belief in such a manner that the terms "folk or traditional" can be used to describe practices that are truly universal. In North America, Europe and the Caribbean, the return to the traditional ethnomedicinal aspect of healthcare is not restricted to the poor, but extends to all social classes (Lowe, 2000).

According to data released by the World Health Organization (WHO), ethnomedicine has maintained its popularity in all regions of the developing world and its use is rapidly expanding in the industrialized countries, for example, in China traditional herbal preparation account for 30–50% of the total medicinal consumption. In Ghana, Mali, Nigeria and Zambia, the first line treatment for 60% of children with malaria is the use of herbal medicine. In San Francisco, London and South Africa, 70% of people living with HIV/AIDS use traditional medicine. Today the annual global market for herbal medicine stands at over US $60 billion (WHO, 2003).

Most of the Myanmar traditional drugs are made up from wild plants and only a few drugs that are made up from cultivars. Myanmar is rich in flora and has the ancient empirical knowledge in the indigenous plants. This social acceptance of herbal medicine among the majority of the people is due to the fact that certain plants which do have reliable curative powers. A numbers of Myanmar traditional important medicinal plants are being categorized due to the effectiveness. Therefore the study of medicinal plants and their therapeutics has played very important role in health care system of Myanmar.

This present work deals with some medicinal plants used for various ailments grown in Kin-Taung Village, Tounggoke Township, to inform the knowledge of ethnomedicinal uses of local people who live in the Taunggoke Township area and to document the development of wild medicinal plants domestication and utilization from various traditional healers of Taunggoke Township.

MATERIALS AND METHODS

Ethnomedicinal data were collected from December 2016 - September 2017, two tribal villages that were selected with the help of aged persons on basis of the availability of traditional healers. Most of the informants belong to an age between 50 and 80 years. The key informants selected from each sampled villages were the most knowledgeable ones as suggested by the tribal elders of respective villages. Before interview, Prior Informed Consent (PIC) was taken from each informant. The data have been collected by interviewing the informants through semi-structured and open-ended questionnaire. The local name of the plant, parts used, preparation and mode of administration of the crude drug, disease cured, etc. were recorded in detail. Interviews were conducted in the local languages i.e. Rakhine. The plant specimens were collected and identified with the help of different Floras (Backer, 1963; Hundley and Chit Ko Ko, 1987; Kress *at al*., 2003). Correct and Valid scientific names for the recorded plant species have been used here following The 8 families are arranged by APG III system (2009). Collected plant specimens have been preserved as herbarium specimen following conventional techniques and kept in Department of Botany, Taunggoke Degree College for future references. During field trips, the digital photographs and specimens were collected. The results are shown in Table (1) List of the plant use for local people of Taunggoke Township areas, Table (2) Main Plant Groups Used in Medicinal Purpose in Study Area, Table (3) Habit of Medicine plant in Study Areas.

RESULTS

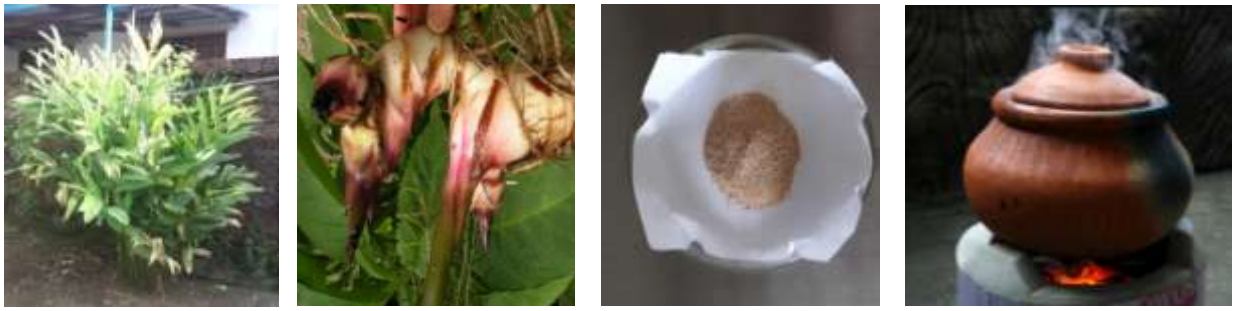
Scientific Name - *Alpinia conchigera* Griff. Nat.PL.Asiat.3:424.1851 I
Family - Zingiberaceae
Common Name - Greater galangal
Local Name - Padegaw-gyi
Local Name - Padegaw
Part used - Rhizomes

Outstanding features

Perennial, Rhizome cylindrical, stout, aromatic,covered with scales. Leaves alternate, lanccolate,lower part surrounding the stem,the upper face glabrous and shining. Inflorescences terminal, dense raceme, long. Flowers white, lip veined with red. Fruits globose or ovoid.

Flowering period - May - September.
Distribution - Grows wild in the mountains and is cultivated everywhere.

Uses – The rhizome is used in the treatment of malaria fever, in a daily dose of 3 to 6g in the form of a decoction powder.



(a) Habit (b) Rhizomes (c) Pieces of rhizomes (d) Decoction of pot

Figure 1. *Alpinia conchigera* Griff.

Scientific Name - *Carica papaya* Linn.Sp .PL. 2:1036 .1753 [1 May 1753] (IK)
Family - Caricaceae
Common Name - Papaya
Myanmar Name - Thinbaw
Local Name - Pa-da-kar
Part used - Leaves

Outstanding features

A small tree or herbaceous often with an unbranched trunk and a terminal cluster of leaves, lactiferous. Leaves alternate, palmately lobed, latex present. Flower unisexual (monoecious or dioecious).Inflorescence axillary or solitary. Male flower sessile, pendulous panicles, calyx small, connate at base, 5 lobed, corolla light yellow, stamens 10, alternate to corolla lobed. Female flower solitary, short pedicelled, corolla tube very short, style short, 5 stigma, fan shape, short corolla tube, ovary ovoid, many ovules. Fruit berries, ellipsoid, orange yellow when ripe. Seeds many, black, globose, testa fleshy.

Flowering period - January -April
Distribution - Cultivated widely.
Uses - The leaves is dried band made powder. It was use as a tea once a day to treat diabetes.

(a) Habit (b) Flowers (c) Motor of leaves (d) Decoction of leaves

Figure 2.Medicinal uses of *Carica papaya* Linn.

Scientific Name - *Catharanthus roseus* (L.) G .Don Gen .Hist .4 (1):95. 1837(IK)
Family - Apocynaceae
Common Name - Periwinkle
Myanmar Name - Thinbaw-ma-hnyo
Local Name - Thinbaw-ma-hnyo
Part used - Leaves

Outstanding features

Perennial herb, stems pinkish–red, much branched. Leaves opposite, obovate, glabrous on both sides, dark shining above. The Inflorescences are terminal. The flower are white to dark pink with a darker red centre, with a basal tube, long, erect, corolla tube cylindrical, glabrous, filament very short, ovary superior, 2 carpels, style slender, stigma glabrous. Fruit composed of 2 free cylindrical follicles, narrow, slightly arched-recurved in pairs. Seeds are numerous, tiny blackish brown.

Flowering period - May-October
Distribution - Common wild plant and cultivated as an ornamental plant.
Uses - The leaves are useful in treating diabetes mellitus, in a daily dose of 4 to 8g as a decoction or liquid extract.

(a) Habit (b) Inflorescences (c) Powder of leaves (d) Decoction of leaves
Figure 3.*Catharanthus roseus* (L.)

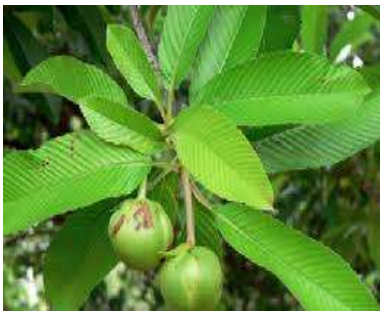
Scientific Name - *Dillenia indica* L. Sp.Pl.1:535.1753 [1 May 1753]IK
Family - Dilleniaceae
Common Name - Elephant apple
Myanmar Name - Tha byu
Local Name - Tha byu
Part used - Leaves

Outstanding features

Medium sized evergreen trees, bark is reddish brown in colour,young branchlets is brown pubescent, contain leaf scars.Leaves are fasciculate at the ends of branches, petiole is narrowly winged, channeled, sheathing, leaf blade oblong.Inflorescence terminal and solitary cymes.Flowers are solitary cymes, large, white, 5 merous, sepals 5, orbicular, concave, thickly and fleshy, petals 5, white,obovate,stamens many, ovary superior, carpels 16-20 in number.Fruits are aggregate and globose, indehiscent, persistent sepals. Seeds compressed,embedded in glutinous pulp with hairy margins.

Flowering period - May - June.
Distribution - Grows wild.
Uses - The decoction of the leaves are used to treat diabetes.


(a) Habit


(b) Fruit and leaves


(c) Boiling in the pot

Figure 4. Medicinal uses of *Dillenia indica* L.

Scientific Name - *Piper betel* Blanco. FI .Filip .[F .M .Blanco]22 .1837 (IK)
Family - Piperaceae
English Name - Betel vine
Myanmar name - Kun
Local Name - Kun
Part used - Leaves
Uses - Chew 4 leaves with a bulb of *Allium sativum* L. for malaria.

Outstanding features

A slender creeper with adventitious roots.Stems glabrous, sulcate, thickened at the nodes.Leaves alternate,heart-shaped, palmately nerved, glabrous and shining on bothsides.Inflorescence in drooping,dense axillary spike,consisting of male and female flower. Berry globose, hairy at the apex (rarely produced). All parts of the plant have a special aroma.

Flowering period - May- August

Distribution - Cultivated in many areas, especially in the South for its leaves, which are chewed.


(a) Habit


(b) Leaves


(c) Bulbs of *Allium Sativum* L.

Figure 5. Medicinal uses of *Piper betel* Blanco.

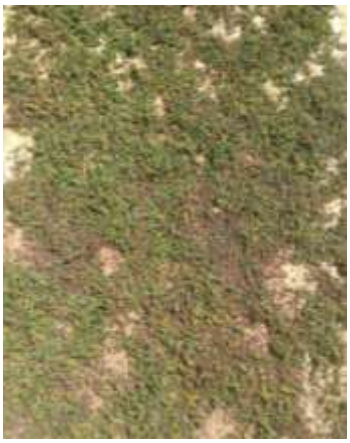
Scientific Name - *Piper nigrum* L . Sp .Pl .1: 28 .1753 [1 May 1753] IK
Family - Piperaceae

Common Name - Black pepper
Local Name - Nga-yoke -kaung
Part used - Seeds

Outstanding features

Climbing perennial herbs. Stems glabrous,rooting at the nodes. Leaves alternate,rounded at the base, apex pointed, recurved nerves prominent beaneath. Inflorescence in drooping spike of dioecious flower, opposite and shorter than the leaf. Berry glabrous, red when ripe, turning black after drying, strongly scented and bitter to the taste.

Flowering period - May-August
Distribution - Extensively cultivated.
Uses - Boil seeds with bulbs of *Allium sativum* L. and leaves of *Azadira chtaindica* and drink decoction two times daily.


(a) Habit (b) Seeds (c) Drying Seeds

Figure 6. Medicinal uses of *Piper nigrum* L**.**

Scientific Name - *Solanum nigrum* (L.) Sp.PL. 1:186.1753 [1 May 1753] (IK)
Family - Solanaceae
Common Name - Kaju
Local Name - Kazaw-kha
Part used - Fruit

Outstanding features

Perennial herb,much branched, prickles many, large, sharp, the bases compressed, often recurved.Leaves alternate, simple, pricky, laminae ovate, the tips subacute, the bases cordate, surface pubescent.Inflorescences in extra axillary cymes, many flowered, bract not found. Flower bisexual, actinomorphic, 5 merous, calyx synsepalous, 5 – lobed, triangular, persistent, corolla synpetalous, 5-lobed, rotate, stamen - 5, blue, epipetalous,the filament very short, anthers dithecous by apical pore, ovary superior, 2-carpelled, syncarpous, 2 - locule, the ovules many in each locule, axile placentation, style pubescent, stigma capitate.Fruit berry, globose, glabrous, dark yellow when ripe. Seeds subdiscoid, much compressed, endosperm fleshy.

Flowering period - Throughout the year
Distribution - Throughout the tropical regions of Myanmar.

Uses- The fruit are used to treat for diabetes.



(a) Habit (b) Inflorescence (c) Ripe Fruits

Figure 7.Medicinal uses of *Solanum nigrum* L.

Table (1) List of the plant use for local people of Taunggoke Township area

Sr. No	Scientific name	Family	Vernacular name	Part used	Form of preparation
1.	*Alpinia conchigera* Griff. Nat.PL. Asiat.3:424.1851. IK	Zingiberaceae	Padegaw-gyi	Rhizome	Decoction
2.	Carica papaya Linn Sp.Pl. 2:1036. 1753[1 May 1753](IK)	Caricaceae	Thinbaw	Leaves	Tea
3.	*Catharathus roseous* (L.) G .Don Gen.Hist. 4(1) : 95. 1837 (IK)	Apocynaceae	Thinbaw – ma –hnyo	Leaves	Decoction / Liquid extract
4.	*Dillenia indica* L. Sp.Pl. 1:535. 1753 [1May 1753] IK	Dilleniaceae	Thabyu	Leaves	Decoction
6.	*Piper betel* Blanco FL. Filip. [F.M Blanco] 22.1837(IK)	Piperaceae	Kun	Leaves	Chew(Eaten)
5.	*Piper nigrum* L. Sp.Pl. 1:28. 1753[1May 1753] IK	Piperaceae	Nga-yoke - kaung	Seeds	Decoction
7.	*Solanum nigrum* L.Sp. Pl. 1:186. 1753 [1 May 1753] IK	Solanaceae	Kazaw-kha	Fruit	Eaten

Table (2) Habit of Medicine plant in Study Area

No.	Habit	Number of Species	%
1.	Tree	1	14%
2.	Shrubs	3	43%
3.	Herb	1	14%
4.	Vine/ Climber	2	29%
	Total	7	100%

Table (3) Main Plant Groups Used in Medicinal Purpose in Study Area

Plants Group	Number of species	
	Number	%
Dicotyledons	6	86%
Monocotyledons	1	14%
Total	7	100%

CONCLUSION

This study will help in preparation of ethnomedicinal database. The use of quantitative tools is very new approach here in analysis of Rakhine medicine from Southern Rakhine State. The high consensus obtained from the healers who underlines their well-defined herbal tradition and could guide in selection of medicinal plants and natural product studies. The traditional knowledge of herbal medicine was practiced among the Rakhine community of the villages surrounding the Taunggoke Township of Thandwe District that should be conserved through its documentation before it is lost from the respective Rakhine societies forever. It will also protect the Rakhine community of the study area. We recommend for training the health care units in tribal areas on knowledge of ethnomedicine for various treatments in case of emergency as a first aid to save lives if necessary. The herbal claim of this study has to be exploited further for developing new cost effective herbal drug.

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