



Investigation Biodiversity Ethnobotany in Mon State, Republic of the Union of Myanmar

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ABSTRACT

The study of ethnobotany in Mon State, Republic of the Union of Myanmar aimed to investigate the diversity of plants and local knowledge on plants from local people. The study was carried out in the community by field survey, plant samples and interviews about plants used from January 2017 to May 2018. The results showed, there were 39 families, 55 genera and 59 species which 19 species are herbs, 16 species are shrubs and shrubby, 12 species are trees, 7 species are climbers, 2 species are undershrubs and 1 species is grass. From the interviews, the results revealed, there are 4 types of plants according to their utilities and some are for multiple purposes, as follow: 1) edible plants; 11 families 13 genera 13 species, 2) medicinal plants; 35 families 49 genera 53 species, 3) construction materials; 5 families 5 genera 5 species and 4) other purposes; 12 families 15 genera 15 species.

Keywords : Biodiversity / Ethnobotany / Mon State / Myanmar

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Introduction

Myanmar is geographically located in the Southeast Asia, this country is richly endowed with diverse habitat types and natural resources, cultures and traditions (Thaung Naing Oo, 2004).

Mon State is one of Myanmar's 14 administrative divisions (Wikipedia, 2001). The Mon people are one of the oldest civilization in Southeast Asia, with a recorded history dating back more than a millenium (UNHCR South-east Myanmar Information Management Unit, 2004).

Rubber is one of the major revenue-generating crops in Myanmar's national economy (Thawngmung, 2014). The largest areas is in Mon State (Kenney-Lazar and Wong, 2014). Some of the farmers started cultivating rubber in the nearby fallow, vacant, waste lands, pasture, reserved or protect forest, or/and converted land designated for paddy or other crops into rubber (Thawngmung, 2014). Deforestation and selective cutting are the main factors for the species vulnerable (Kadir et al., 2013), as well as traditional knowledge of plants used. This study aimed to assess the diversity of ethnobotany plants used by local people in Mon State and for the conservation of biological resources and their sustainable utilization.

Materials and methods

Research was conducted from January 2017 to May 2018 in Taung Phalu Village and Yoe Goe Village, Thanbyuzayat, Mon State. Ethnobotany datas were collected by 2 approaches 1) collected plants sample from the villages and transfered to the laboratory for furthur identification. Plant specimens are identified as belonging to families and species base on Flora of Thailand, Flora of the Malay Peninsular, Flora of British India and specialists. 2) Studied the utilization of plant using the knowledge and wisdom of local citizens and folk medicine by interviewing and rapid ethnobotanical appraisal REA).

Results and discussion

The studies of ethnobotany in Thanbuzayat, Mon State, Republic of the Union of Myanmar revealed, there were 39 families 55 genera and 59 species which divided into 6 groups according to life form such as trees, shrubs and shrubbys, climbers, herbs, undershrubs and grass. The useful plant species are mostly herbs; 19 species whereas 17 are shrubs and shrubby, 12 are trees, 7 are climbers and 3 are undershrubs and 1 is grass (Table 1).

The results of interviews, the utilization of plants indicated, there are 4 categories as follow: 1) edible plants; 11 families 13 genera 13 species, 2) medicinal plants; 35 families 49 genera 53 species, 3) construction materials; 5 families 5 genera 5 species and 4) other purposes; 12 families 15 genera 15 species. Additionally, some are used for multiple purposes with various parts of plants as rootsand rhizomes, stems and barks, leaves, fruits, flower, seeds and the whole plant (Table 1).

Edible plants

From the results, The Mon has known 13 species for food. They take fruits the most. The uses of edible plants are closely similar to the Mon people in Thailand (Jianwitchayakul, 2016).

Medicinal plants

A total of 53 species of plants belongs to 35 families were identified for the medicinal plants. Dominant family were Fabaceae (6 species), followed by Acanthaceae (4 species), Apocynaceae and Lamiaceae (3 species each) respectively (Table 1). The utilization of medicinal plant species belong to Fabaceae was agreement with etnomedicinal flora reported from Chin state, Myanmar (Ong, et al., 2017).

The most commonly used plant organs to prepare the remedies were the whole plant (17), leaves (17), roots and rhizomes (12), stems and barks (6), fruits (9) seeds (5) and flowers (2). The results were also resembled by other researchers (Kadir, et al., 2013, Gonzalez et al., 2010, Telefo et al., 2011). The leaves are the photosynthetic organ containing photosynthates which might be accountable for medicinal values (Ghorbani, 2005).

Construction materials

From the results, Apocynaceae, Bignoniaceae, Lauraceae, Rhizophoraceae and Rubiaceae were used in building houses and making utensils which are the same utilization as in Thailand (Veesommai and Kavduengtian, 2004).

Other purposes

The results showed, 15 species of plants are used for other purposes. The most common purposes are for firewood (14 species) and to sculpture the Buddha images (1 species). The use of other purposes have the same utilization as in Thailand except *Zizyphus rugosa* Lam. (Veesommai & Kavduengtian, 2004).

Conclusion

Myanmar has a rich biodiversity including many endemics also rich heritage of traditional knowledge of using plants as medicines. However, only 39 families, 55 genera and 59 species of plants used were recorded in Thanbyuzayat, Mon State which are lower than expected outcomes compares to the rich of natural resources. The poor result might be from deforestation and economic.

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Table 1 Ethnobotanical plants in Thanbyuzayat, Mon State used by villagers.

Families/species	Habit	Category				Plant application
		Ed	Me	Co	Ot	
Acanthaceae						
1. <i>Andrographis paniculata</i> (Burm.f.) Wall. ex Nees	S		*			Whole plant for antipyretic, tonic, diabetes, malarial
2. <i>Barleria prionitis</i> L.	S		*			Whole plant for hepatitis, jaundice
3. <i>Hygrophila phlomoides</i> Nees.	H		*			Seeds for glandular diseases
4. <i>Justicia adhatoda</i> L.	S		*			Leaves for asthma, cough, bronchitis
Acoraceae						
5. <i>Acorus calamus</i> L.	H		*			Rhizome for indigestion, colic, diarrhea
Amaranthaceae						
6. <i>Achyranthes aspera</i> L.	H		*			Whole plant for asthma, bleeding, cough
Amaryllidaceae						
7. <i>Crinum pratense</i> Roxb.	T		*		*	Leaves for wounds healing, wood for firewood
Apiaceae						
8. <i>Centella asiatica</i> (L.) Urb.	H	*	*			
Apocynaceae						
9. <i>Alstonia scholaris</i> (L.) R.Br.	T		*	*	*	Barks for fever, antihelminthic, wood for firewood
10. <i>Oxystelma esculentum</i> (L.f.) Sm	C		*			Whole plant for tonic, diuretic, cough, gonorrhoea
11. <i>Streptocaulon tomentosum</i> L.	C		*			Root for epilepsy, sore, grand mal
Aristolochiaceae						
12. <i>Aristolochia indica</i> L.	T		*		*	Leaves for antidote to snake bite, wood for firewood
13. <i>Aristolochia roxburghiana</i> Klotzsch	C		*			Whole plant for tonic, Inflammation, carminative

Table 1 (continue)

Families/species	Habit	Category				Plant application
		Ed	Me	Co	Ot	
Asteraceae						
14. <i>Microglossa pyrifolia</i> (lam.) Kuntze	ScanS		*			Whole plant for abrasion, liver cancer, tonic
15. <i>Blumea virens</i> Wall. ex DC.	H		*			Seeds for heart diseases
Bignoniaceae						
16. <i>Markhamia stipulata</i> (Wall.) Seem. var. <i>stipulata</i>	T	*		*	*	Flower were eaten, wood for firewood
17. <i>Oroxylum indicum</i> (L.) Benth. ex Kurz	ST	*	*		*	Fruits were eaten, wood for firewood
Convolvulaceae						
18. <i>Evolvulus alsinoides</i> (L.) L. var. <i>alsinoides</i>	H		*			Whole plant for fever, reducing stress
Costaceae						
19. <i>Cheilocostus speciosus</i> (J. Koenig) C.D. Specht	H		*			Rhizomes for carminative, expectorant
Cucurbitaceae						
20. <i>Luffa aegyptiaca</i> Mill.	HC	*	*			Fruits foe catarrh
Cyperaceae						
21. <i>Scleria caricina</i> Benth.	H		*			Leaves for gonorrhoea and seasoning.
Dilleniaceae						
22. <i>Dillenia indica</i> L.	T	*	*		*	Fruits were eaten
Euphorbiaceae						
23. <i>Croton persimilis</i> Müll. Arg	S/ST		*			Roots, barks and leaves for dyspepsia
Fabaceae						
24. <i>Clitoria ternatea</i> L.	S		*			Leaves for local anesthetic, antidiabetic
25. <i>Cassia italica</i> (Mill.) Spreng	S		*			Leaves were eaten
26. <i>Cassia tomentosa</i> Wall.	S		*			Roots for aphrodisiac
27. <i>Flemingia semialata</i> Roxb.	S		*			Leaves and stem for rheumatism, diuretic

Table 1 (continue)

Families/species	Habit	Category				Plant application
		Ed	Me	Co	Ot	
28. <i>Flemingia strobilifera</i> (L.) W.T. Aiton	S		*			Roots for epilepsy, hysteria, insomnia, relieve pain
29. <i>Mucuna pruriens</i> (L.) DC. var. <i>pruriens</i>	C		*			Fruits and seeds for stimulant
30. <i>Senna occidentalis</i> (L.) Link	US		*			Fruits and seeds for stimulant
31. <i>Tadehagi triquetrum</i> (L) H. Ohashi	US		*			Leaves for arthelminthic, urinary infections
Gentianaceae						
32. <i>Swertia pulchella</i> Buch- Ham. ex D.Don	H		*			Whole plant for malaria, hepatitis B, C
Lamiaceae						
33. <i>Leucas aspera</i> (Willd.) Link	H		*			Leaves for cough
34. <i>Clerodendrum indicum</i> (L.) Kuntze	S		*			Whole plant for gallbladder diseases, mucus stimulant
35. <i>Vitex trifolia</i> L. supsp. <i>trifolia</i>	S		*			Leaves, fruits and roots for indigestion, dyspepsia, diarrhea, dysentery
Lauraceae						
36. <i>Cinnamomum tamala</i> (Buch.-Ham.) T. Nees. & Eberm.	T		*	*	*	Roots for dyspepsia, menstrual disorder
Malvaceae						
37. <i>Bombax ceiba</i> L.	T	*	*		*	Flowers were eaten, roots for menorrhagia, kidney failure
38. <i>Hibiscus sabdariffa</i> L.	ExH	*	*			Leaves and fruits for eaten
39. <i>Sida cordifolia</i> L.	US		*			Leaves for arthris, anemia
Melastomataceae						
40. <i>Melastoma malabathricum</i> L.	S		*			Roots for toothache, haemorrhoids, diarrhoea dysentery, and leucorrhoea

Table 1 (continue)

Families/species	Habit	Category				Plant application
		Ed	Me	Co	Ot	
Menispermaceae						
41. <i>Tinospora cordifolia</i> (Willd.) Miers. ex Hook.f & Thomson	C		*			Stems for diabetes mellitus, tonic, earache
Moraceae						
42. <i>Ficus hispida</i> L. f.	ST	*	*		*	Fruits for antiinflammatory, emetic, laxative
Myristicaceae						
43. <i>Myristica fragrans</i> Houtt.	T		*		*	Seeds for tonic, Pile, leucorrhoea
Oxalidaceae						
44. <i>Averrhoa carambola</i> L.	ExST	*	*			Fruits were eaten
Pedaliaceae						
45. <i>Sesamum indicum</i> L.	H	*	*			Seeds for polyuria and indigestion.
Phyllanthaceae						
46. <i>Phyllanthus urinaria</i> L.	H		*			Whole plant for hepatitis, hepato-protective effect, diabetes mellitus, hypertension.
Piperaceae						
47. <i>Piper longum</i> L.	H	*	*			Whole plant for Indication, colic, amenorrhoea
Poaceae						
48. <i>Cymbopogon martinii</i> (Roxb.) Will. Watson	G		*			Whole plant for gall stones, indigestion, win colic.
Polygonaceae						
49. <i>Persicaria attenuata</i> (R. Br.) Soják var. <i>pulchra</i> (Blume) K.L. Wilson	H		*			Whole plant for arthritis, abscess, metrorrhagia, constipation, tingling and numbness, oedema and general paresis

Table 1 (continue)

Families/species	Habit	Category				Plant application
		Ed	Me	Co	Ot	
Rhamnaceae						
50. <i>Zizyphus rugosa</i> Lam.	ST		*		*	Whole plant for heart diseases, fruits were used to sculpture the Buddha images
Rhizophoraceae						
51. <i>Carallia brachiata</i> (Lour.) Merr.	T		*	*	*	Whole plant for flatulence, wood for construction and firewood
Rubiaceae						
52. <i>Oldenlandia corymbosa</i> L.	H		*			Whole plant for skin sores, ulcers, sore throat
Rutaceae						
53. <i>Zanthoxylum rhetsa</i> DC.	T		*			Barks, leaves and seeds for chest pain, dyspepsia
54. <i>Aegle marmelos</i> (L.) Corrêa ex Roxb	T	*	*	*	*	Leaves for astringent, fruits were eaten, wood for construction and firewood
Sapindaceae						
55. <i>Cardiospermum corundum</i> L.	S		*			Leaves and stems for diaphoretic, refrigerant, stomachic, hypertension
56. <i>Nephelium lappaceum</i> L.	T	*	*		*	Fruits for fever, headache, tongue disease,
Solanaceae						
57. <i>Physalis angulata</i> L.	H		*			Whole plant for diuretic and antipyretic
Vitaceae						
58. <i>Cissus discolor</i> Blume	C		*			Roots for gastric cancer, inflammation

Table 1 (continue)

Families/species	Habit	Category				Plant application
		Ed	Me	Co	Ot	
Zingiberaceae						
59. <i>Boesenbergia rotunda</i> (L.) Mansf.	H	*	*			Rhizomes for antibacterial and seasoning

*Remark C: climber, G: grass, H: herb, HC: herbaceous climber, Scan S: scandent shrub, S: shrub, ST: shrubby tree, T; Tree, US: undershrub, Ed: edible plant, Me: medicinal plant, Co: construction material, Ot: other purposes

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