



Faculty of Resource Science and Technology

**A STUDY OF MEDICINAL PLANTS USED BY LUN BAWANG  
COMMUNITY AT KAMPUNG LONG SERUGANG IN LAWAS,  
SARAWAK.**

**Ivy Esther See  
(50149)**

**Bachelor of Science with Honours  
(Plant Resource Science and Management)  
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**A Study of Medicinal Plants Used by Lun Bawang Community at Kampung Long  
Serugang in Lawas, Sarawak.**

**Ivy Esther See  
(50149)**

This project is submitted in partial fulfilment of the requirements for the degree of  
Bachelor of Science with Honours  
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Faculty of Resource Science and Technology

UNIVERSITY MALAYSIA SARAWAK

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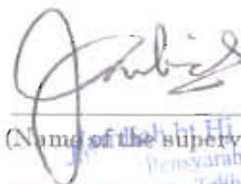
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Name of Candidate : Ivy Esther See (50149)

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---

Supervisor : Puan Jamliah Jamel

Date : \_\_\_\_\_

---

Dr. Freddy Yeo Kuok San

Coordinator

Plant Resource Science and Management Programme

Department of Plant Science and Environmental Ecology

Faculty of Resource Science and Technology

Universiti Malaysia Sarawak

Date : \_\_\_\_\_

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Ivy Esther See (50149)  
Plant Resource Science and Management  
Department of Science and Environmental Ecology  
Faculty of Resource Science and Technology  
Universiti Malaysia Sarawak (UNIMAS)

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# **A Study of Medicinal Plants used by Lun Bawang Community at Kampung Long Serugang in Lawas, Sarawak.**

**Ivy Esther See**

Plant Resource and Management Programme  
Faculty of Science and Technology  
Universiti Malaysia Sarawak

## **ABSTRACT**

An ethnobotanical study on medicinal plant use by Lun Bawang community at Kampung Long Serugang in Lawas, Sarawak was conducted during September 2016 to May 2017. The information on medicinal plants used by Lun Bawang community is obtained through interviews which were through informal conversation with 44 respondents informant and samples collections along with that local community. The plant species that has medicinal values successfully identified and the used and preparation of the plants used by Lun Bawang community at Kampung Long Serugang in Lawas, Sarawak is documented. The study revealed that the Lun Bawang community at Kampung Long Serugang in Lawas used 62 plants belong to 43 families to treat various internal and external ailments. In this study, the most dominant family was Solanaceae (*Physalis minima* L., *Solanum mammosum* L., *Solanum melongena* L., *Solanum torvum* Sw.), while *Orthosiphon stamineus* Benth. (Misai kucing) is the most mentioned by the respondent followed by *Ficus deltoidea* var. *angustifolia* (Miq.) Corner. (Mas cotek), *Physalis minima* L. (Letup-letup), *Polygala* sp. (Akar tuju angin), and *Stachytarpheta indica* (L.) Vahl (Selasih hutan). Leaves were most frequently used for the treatment especially most mentioned of internal ailments such as hypertension, hyperthermia, diabetes, and flatulence, while external ailments such as skin problems. This study showed that the Lun Bawang community at Kampung Long Serugang are still depended on medicinal plants in any case for the treatment of primary healthcare.

**Key words:** Ethnobotany, Medicinal Plants, Lun Bawang Ethnic

## **ABSTRAK**

**Kata kunci:** Etnobotani, Tumbuhan Ubatan, Etnik Lun Bawang

Kajian etnobotani mengenai penggunaan tumbuhan ubatan oleh masyarakat Lun Bawang di Kampung Long Serugang di Lawas, Sarawak telah dijalankan pada bulan September 2016 sehingga Mei 2017. Maklumat mengenai tumbuh-tumbuhan ubatan yang digunakan oleh masyarakat Lun Bawang diperolehi melalui temu bual tidak rasmi dengan 44 responden dan koleksi sampel bersama-sama dengan masyarakat tempatan di tempat kajian tersebut. Spesies tumbuhan yang mempunyai nilai ubatan berjaya dikenal pasti dan penggunaan serta penyediaan tumbuhan yang digunakan oleh masyarakat Lun Bawang di Kampung Long Serugang di Lawas, Sarawak didokumenkan. Kajian menunjukkan bahawa masyarakat Lun Bawang di Kampung Long Serugang di Lawas menggunakan 62 jenis tumbuhan daripada 43 famili untuk merawat pelbagai penyakit dalaman dan luaran. Dalam kajian ini, famili yang paling dominan adalah Solanaceae (*Physalis minima* L., *Solanum mammosum* L., *Solanum melongena* L., *Solanum torvum* Sw.), manakala *Orthosiphon stamineus* Benth (Misai kucing) adalah yang paling kerap disebut oleh responden diikuti oleh *Ficus deltoidea* var. *angustifolia* (Miq.) Corner. (Mas cotek), *Physalis minima* L. (Letup- letup), *Polygala* sp. (Akar tuju angin), dan *Stachytarpheta indica* (L.) Vahl (Selasih hutan). Bahagian tumbuhan yang paling kerap digunakan untuk merawat penyakit adalah daun. Kajian ini menunjukkan bahawa masyarakat Lun Bawang di Kampung Long Serugang masih bergantung kepada tumbuh-tumbuhan perubatan untuk rawatan penjagaan kesihatan.



## TABLE OF CONTENT

Approval of Sheet	i
Declaration	ii
Acknowledgements	iii
Abstract / Abstrak	iv
Table of Content	v
List of Tables	vi
List of Figures	vi
List of Appendices	vii
Glossary	viii
<b>CHAPTER 1: INTRODUCTION</b>	<b>1</b>
<b>CHAPTER 2: LITERATURE REVIEW</b>	<b>4</b>
2.1 Ethnobotanical Study	4
2.2 Importance of Medicinal Plants	5
2.3 The Medicinal Plants Study in Malaysia	6
2.4 Conservation of Medicinal Plants	7
<b>CHAPTER 3: MATERIALS AND METHODS</b>	<b>9</b>
3.1 Study Area	9
3.2 Field Methods	10
3.2.1 Interview	10
3.2.2 Herbarium Specimen Collection and Preparation	10
<b>CHAPTER 4: RESULTS AND DISCUSSION</b>	<b>12</b>
4.1 Demographic Data	12
4.2 Collection of Herbarium Specimen	14
4.3 Documentation of the Medicinal Plants Used by Lun Bawang Community at Kampung Long Serugang in Lawas	17
4.4 Utilization of Medicinal Plants used by Lun bawang Community at Kampung Long Serugang in Lawas	19
4.5 Medicinal Plants Parts used by Lun Bawang Community at Kampung Long Serugang in Lawas	33
4.6 Mode of Consumption of the Medicinal Plants used by the Lun Bawang Community at Kampung Long Serugang in Lawas	35
<b>CHAPTER 5: CONCLUSION</b>	<b>39</b>
<b>REFERENCES</b>	<b>41</b>
<b>APPENDICES</b>	<b>44</b>

## LIST OF FIGURES

<b>Figure No.</b>		<b>Page</b>
Figure 3.1	Map of the study area	9
Figure 4.1	Percentage of the respondent interviewed based on their age range	13
Figure 4.2	Example of plant collection herbarium label	16

## LIST OF PLATES

<b>Plate No.</b>		<b>Page</b>
Plate 4.1	Example of specimen herbarium sheet	16
Plate 4.2	Medicinal plants of (A) <i>Ficus deltoidea</i> (Mas cotek); (B) <i>Moringa oleifera</i> (Merunggai); (C) <i>Physalis minima</i> (Letup-letup); and (D) <i>Stachytarpheta indica</i> (Selasih hutan)	36
Plate 4.3	Medicinal plants of (A) <i>Euphorbia milli</i> (Crown of thorn); (B) <i>Sida acuta</i> (Common wireweed); (C) <i>Nephrolepis bisserata</i> (Paku uban); and (D) <i>Peperomia pellucida</i> (Sireh cina)	38

## LIST OF TABLES

<b>Table No.</b>		<b>Page</b>
Table 4.1	List of family name and species/genus documented from the study of medicinal plant used by Lun Bawang community at Kampung Long Serugang in Lawas, Sarawak	18
Table 4.2	Plants used as medicines by the Lun Bawang community at Kampung Long Serugang in Lawas, Sarawak	21
Table 4.3	Plant parts used for medicinal plant uses by the Lun Bawang community at Kampung Long Serugang in Lawas, Sarawak.	33

## LIST OF APPENDICES

Appendix No.		Page
Appendix 1	Example of questionnaire form (Raw Data)	44
Appendix 2	List of Respondents	45
Appendix 3	Medicinal plant of (A) <i>Centella asiatica</i> (Pegaga); (B) <i>Scindapsus</i> sp.; (C) <i>Aloe vera</i> (Lidah buaya); (D) <i>Impatiens balsamina</i> (Bunga kembang)	46
Appendix 4	Medicinal plants of (A) <i>Mimosa pudica</i> (Semalu); (B) <i>Myrmecodia</i> sp. (Sarang semut); (C) <i>Phyllanthus amarus</i> (Dukung anak); (D) <i>Ocimum sanctum</i> (Kemangi)	47
Appendix 5	Medicinal plants of (A) <i>Allium fistulosum</i> (Bawang besar); (B) <i>Musa</i> sp. (Pisang); (C) <i>Momordica charantia</i> (Peria); (D) <i>Phaleria macrocarpa</i> (Mahkota dewa)	48
Appendix 6	Specimen herbarium sheet (A) <i>Stachytarpheta indica</i> (Verbenaceae); (B) <i>Polygala</i> sp. (Polygalaceae); (C) <i>Ficus deltoidea</i> (Moraceae); (D) <i>Scindapsus</i> sp. (Araceae)	49
Appendix 7	Example of Letter to the Head of Village	50
Appendix 8	Example of Student Confirmation Letter	51

## GLOSSARY

Abscess	accumulation of pus in a tissue
Antidote	neutralises or opposes the action of a poison
Antiseptic	an agent that kills or inhibits the multiplication of microorganisms on living tissue
Cathartic	having the power to cleanse the bowels
Chicken pox	a contagious disease especially of children, caused by a virus with a mild fever and itchy spots on the skin developing into blisters
Cholesterol	chemical substance in the body important for the synthesis of steroid hormone
Decoction	solution prepared by boiling plants in water
Diabetes	a disorder in the level of blood sugar due to lack of insulin
Diarrhoea	loose stool due to infection of alimentary canal promotes the flow of urine
Flatulence	presence of excessive gas in the intestines or stomach
Haemorrhoids	bleeding pile
Hypertension	high blood pressure
Hyperthermia	the state of having a body temperature greatly above normal
Jaundice	a condition caused by an excess of bilirubin in the blood due to duct disorder, resulting in yellowing of the skin
Leucorrhoea	an abnormal whitish mucous discharge from the vagina

Phlegm	thick sticky substance secreted by the mucous membranes of the respiratory passages, especially when produced in excessive or abnormal quantities, e.g., when someone is suffering from a cold
Postpartum	after childbirth
Scabies	skin infection due to human itch mite
Shingles	an acute, painful inflammation with a skin eruption often forming a girdle around the middle of the body which is also caused by the same virus as chickenpox
Ulcer	superficial inflammation or sore of the skin or mucous membrane discharging pus
Warts	growths cause by viral infections that make skin cell grow at an accelerated rate

## CHAPTER 1

### INTRODUCTION

Ethnobotany is knowledge of the relationship of man with plants. Plants have a very close relationship with human daily life (Abdullah, 2002). Plant is as one of the major sources of medicines that have been used in all cultures from ancient times to the present day. The World Health Organization (WHO) estimates that about 70-80 percent of the world's population still depends on traditional medicine systems in primary health care (Mesfin *et al.*, 2003).

Tropical rain forests of Malaysia in Southeast Asia specifically are broadly recognized as one of the most species-rich terrestrial ecosystems on the planet (Soepadmo, 1991). This might play a major role in the field of ethnobotany research. Sarawak is one of the 13 states within the Federation of Malaysia and is located in the northernmost part of Borneo. It is the largest state in Malaysia with more than 80% of Sarawak's 12.4 million hectares of land mass are covered by forest (Types and Categories of Sarawak's Forests, 2017).

Sarawak is known for its ethnic composition of its own which is about 27 groups. One of them is Lun Bawang ethnic. They are a minority community which is usually classified as 'other bumiputera'. The distribution of Lun Bawang ethnic can be found mainly in Lawas. Sundar is being part of Lawas, is rich in plant biodiversity. There is also an abundance of medicinal plants and other plants for everyday use. Lawas has a population of around 40,400 people, the majority of whom are Lun Bawang and is followed among other ethnic groups such as Kedayan, Iban, and Chinese etc.

The socio-life and culture of the society a little bit changed when King Brooke has spread the religious belief of Christianity to the community. The main economic activities of Lun

Bawang are agricultural such as paddy planting and now oil palms planting have been demanding on their oils and other uses.

Generally, the use of the medicinal plants in treat ailments has been believed since ancient time. The results of the ethnobotanical research carried out, some of the information obtained and found medicinal plants have successfully played an important role in our lives, either directly or indirectly. Human needs against the plant are not just as a source of food, shelter and a remedy for the illness but also manifested itself in the socio-cultural aspects (Abdullah, 2002). In this study, focuses further more on the aspects of plants as medicines or cures to human ailments.

Agricultural activities are the main villager's basis of survival. Deforestation for agricultural development makes the resources scarce which are also contributing to the loss of information. The popularity of plants with conventional uses among the Lun Bawang in Lawas might fade due to migration, lost interest of younger generations and overwhelming dependence on advanced medication. The young people migrate from rural area to town or city because of modernization which they are offered with more job opportunities and easy access to medical services since there are clinics. The younger generation may not have interest and have less knowledge on medicinal plants. The ethnobotanical studies of medicinal plants used by Lun bawang community are still lack which it is an effort to record and document the information of medicinal plant knowledge in order to pass it from the community to the future generation in an efficient ways.

Therefore, the objectives of this study were,

- (i) To identify plant species that has medicinal values used by Lun Bawang community at Kampung Long Serugang in Lawas, Sarawak

(ii) To document the used and preparation of the plants used by Lun Bawang community at Kampung Long Serugang in Lawas, Sarawak.



## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Ethnobotanical Study

An ethnobotanical study is the investigation of the relationship among the plants and individuals, with a specific prominence on conventional tribal societies (Mesfin *et al.*, 2013). The knowledge of plant use was well-known in ancient civilizations. Popular knowledge of plants used by humans is based on thousands of year's experience (Rodrigues *et al.*, 2003). It is also being stated by Mesfin *et al.*(2003) that almost 80% of the world's population is in developing countries basically depend on plants as a primary health care due to scarcity and lack of access to modern medicine.

Ethnobotanical knowledge of Malaysian communities has indeed been studied extensively since the early 1900s in which the knowledge has been collected by Gimlett and Burkill (1930) cited in K. Mat-Salleh G. K. (n.d.). Most ethnobotanical research in Malaysia is rather concentrated in Peninsular Malaysia. A total of 61% is related to the issuance of the original Peninsular Malaysia, compared with just 20% respectively and 19% of the study focused on Sabah and Sarawak. From this analysis, the community in Peninsular Malaysia has been studied extensively (K. Mat-Salleh G. K., n.d.).

Some records ethnobotanical of the Sarawak was published as the earliest records reported by Van Steenis (1958) and followed by the other. There are 19 % of the publications for the Sabah and Sarawak natives respectively. There were already reports have been published on ethnobotany of Iban, Kenyah, Kedayan, Kelabit, Melanau, Melayu, Selako and Penan communities in Sarawak (Mat-Salleh and Latiff; Nazre, 2000).

## **2.2 Importance of Medicinal Plants**

The knowledge of plants used by humans is based on thousands of years experience. The individuals learnt how to perceive and utilize plants, incorporating those with an enchantment spiritual gift which is by "experimentation" (Rodrigues *et al.*, 2003). In the study by Duke (1985), as much as 90% of the population depends on regular prescriptions, for the most part home grown in different parts of the world. The study by Sahri *et al.* (2012) stated that herbal medicine is a well recognized system of medicine throughout the world.

Malaysia is well known for its rich tropical forest that covers most of the face of earth. The fresh plant is not only beautifying the environment, but also has own special. It is being stated by Khalilur (1981) and Raden Supathan (1981), in Malaysia, the use of traditional medicine has been seen a part of the life of the multi- ethnic society for a long time.

Traditional medicinal practitioner usually obtained medicinal plants from whether from the home yards or from the forest. The parts of medicinal plants that they always used are roots, leaves and stem. The used of medicinal plants can be categorized in two ways which is interior or exterior use (Fasihuddin *et al.*, 1991). Recorded examples to show the importance of plants as medicines always come from the West Malaysia (Medicinal Products from Tropical Rain Forest, n.d.).

### **2.3 The Medicinal Plants Study in Malaysia**

The uses of plant-based medicines are adopted by communities in Malaysia today (Khatijah *et al.*, 2008). More than 1000 local species has been recorded in the Peninsular Malaysia only, mainly refers to the practice of traditional medicine of the Malay community. Indigenous communities (Orang Asli) in Peninsular are considered the most widely used plant resources for medicinal purposes compared to other races (Samah, 2002). As for the native communities in Sabah and Sarawak, there are variety usage and practice of traditional medicine according to their own tribes. (Samah, 2002).

Paul P. K Chai (2000) had listed the medicinal plants from the Lun Bawang communities. There were four species from Annonaceae family, two species from Fabaceae, Menispermaceae and Melastomataceae family, and only one species from Aracea, Euphorbiaceae, Poaceae, Hymenophyllaceae, Lauraceae, Orchidaceae, Arecaceae, Schizaeaceae, and Selaginellaceae family.

## 2.4 Conservation of Medicinal Plants

Herbal plants that have been used for health care face an uncertain future due to over exploitation. Today many medicinal plants face extinction or severe genetic loss but detailed information is lacking especially the endangered medicinal plant species no conservation action has been taken (WHO, 1993). Conservation is about preventing damage and loss to our cultural heritage.

Ethnobotanical documentation is an effort to list of medicinal plants which are recorded in the form of writing such as manuscripts, books, plans and researchers notes that either have been published or unpublished. The earliest record of medical knowledge of the Malay traditional way is in the form of manuscript that describes the types of disease, the type of plant and how to cure it (Abdullah, 2002). These efforts need to be done so that a reference list of traditional medicine can be studied more deeply.

Manicad (1996) concluded in the Keystone Dialogue in 1991, that these two plant protection strategy either in-situ and ex-situ are needed to strengthen the process of preservation and conservation of the environment. The recently established for the protected conservation areas are Gunung Gading and Gunung Mulu National Parks in Sarawak (Soepadmo, 1991)

In-situ conservation is important in maintaining and conserving natural habitats for the purpose of breeding populations in species diversity (Marzalina *et al.*, 2001). Protection for in- situ can provide longevity and evolution of a species in an ecosystem. For example, Pulong Tau National Park is one of the protected forest areas in Limbang Division (Lee, 2001).

*Ex-situ* conservation is a method against critically endangered species when their natural habitat is lost or destroyed (Marzalina *et al.*, 2001). For example, the botanical garden, arboretum and *in vitro* gene bank or field. There are 26 protected areas by *ex situ* until in 2001 in which the plant collection preserved in the arboretum and gene bank of the research institutions, public universities and government agencies across the country. Some examples of government agencies involved are located in Semenggok, Sarawak (Lee, 2001).

Based on the 2007 annual report of the Forest Research Institute Malaysia, ethnobotanical plants used by local communities were also collected during the expedition of Botany to Pulong Tau National Park, Sarawak, which has been together organized by the Project Tree Flora of Sabah and Sarawak (TFSS).

In Sarawak, it is being stated by Runi Sylvester, the Senior Research Officer from Department of Conservation Forestry in the BorneoPost Online (2011) that the high demand for medicinal plants began to raise public awareness of its importance. Consequently, the work of collecting and conservation of medicinal plants began actively carried out. Runi Sylvester, Senior Research Officer from Department of Conservation Forestry have also explained that the work of collecting and conservation of medicinal plants began actively carried out and there are 608 species have been successfully documented as a traditional medicinal uses multiethnic society in the country. In the meantime, it is estimated more than 1,000 species of medicinal plants can be found in this state cover a wide range areas and types of forest (Tugong, 2011).

## CHAPTER 3

### MATERIAL AND METHODS

#### 3.1 Study Area

The study of medicinal plants was conducted in Kampung Long Serugang, Lawas. It is situated approximately 22 km from Lawas town and consists of approximately about 144 peoples with 18 households in that village. The study area is classified as lowland mixed dipterocarp forests. This ethnic group once turn to the forest for their daily needs and also for incomes. Sell forest products in the market or 'Tamu' such as forest vegetables, fruit and medicinal plants as a result of their additional income too. Some of them are government servants, ran their owned business and work in private companies. Most of all, their economic activities are agriculture. The youngsters are mostly migrating to urban city.



Figure 3.1 : Map of the study area

## **3.2 Field Methods**

Information on medicinal plants used by Lun Bawang community was obtained through interviews and sample collection.

### **3.2.1 Interview**

The informal interview was conducted with the Lun Bawang by using open-ended questions through informal conversations with respondents who has knowledge on medicinal plants. This interview was obtained through informal conversation with the Lun Bawang community and the information from those interviews was recorded in the questionnaire form [Appendix 1] which contained the plant's informations such as family names, botanical names, common names, vernacular names in Lun Bawang, medicinal uses, plant part used, method of preparation and mode of consumption. All of this information was given by the respondent recorded in the questionnaire forms. Therefore, a data collection for the study of medicinal plants used by Lun Bawang community in Kampung Long Serugang in Lawas Sarawak successfully conducted in between September 2016 to May 2017 with a total of 44 respondents.

### **3.2.2 Herbarium Specimen Collection and Preparation**

Collection of plant specimens is necessary in this study for documentation. Plant specimens were collected from the field and pressed as soon as possible. According to Bridson & Forman (Angela, 2012) a standard herbarium method is used in sample collection for research study. First of all, only the fertile specimen was used for herbarium collection. The collected specimens were stored in the heavy duty polythene bags or newspaper to make it stay in good condition. After that, the samples were preserved in 70% alcohol concentration for 7 days. Next, the samples were dried. The specimens were

mounted on a mounting paper by using the glue and were sew to ensure the specimen strongly attached to the surface mounting paper after the drying process. Each herbarium label was contained the following information such as Heading, Scientific name, Locality, Habitat, Date of collection, Name of collector and Collection Number. The mount sample was sent to Herbarium Universiti Malaysia Sarawak (HUMS) for further reference.