Ethnobotanical Study of Medicinal Plants Used by Iban Community in Selected Longhouses in Tatau, Bintulu

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Bachelor of Science with Honours
(Plant Resource Science and Management)
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Ethnobotanical Study of Medicinal Plants Used by Iban Community in Selected Longhouses in Tatau, Bintulu

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This project is submitted in fulfillment of the requirement for the degree of Bachelor of Science with Honours Plant Science and Management

Plant Science
Plant Science and Environmental Ecology

Faculty Of Resource Science and Technology
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ABSTRACT

Ethnobotany study is a study of relationship between people and plants. This study was carried out among Iban community in four longhouses in Tatau district, Bintulu. Over-exploitation of forest causes the detailed documentation of plants to decrease. The objectives of this study are to document medicinal plants, its part involved and method of herbal preparation. It was carried out through interview session with the respondents and identification of medicinal plants. A total of 64 species from 33 families were identified and documented in study area. The most common species used as medicinal plants was Zingiberaceae family, followed by Fabaceae and Lamiaceae families. There were 34 ailments treated by medicinal plants where majority of it were minor ailments such as cough and diabetes. In addition, ailments can be treated internally and externally such as eating and applying onto infected area respectively. The most common method in herbal preparation is decoction. The part of plant that was commonly used was leaves where fresh leaves was preferred for better effect. The significance of this study is that these species, Alstonia scholaris, Fagraea auriculata, Imperata cylindrica, Ipomea aquatica, Sapindus rarak, Tinospora rumphii and Zea mays were used only among Iban community in Malaysia.

Keywords: Ethnobotany, Medicinal plants, Iban community, Tatau district

ABSTRAK


Kata kunci: Etnobotani, Tumbuhan ubatan, Komuniti Iban, daerah Tatau
CHAPTER 1: INTRODUCTION

Malaysia is a precious jewel that possess a vast wealth of biodiversity. In fact, Malaysia is one of the 12 countries in the world that rich in biodiversity. There are about 50,000 species of plants in the world and 35,000 species among them are medicinal plants. According to World Health Organization (WHO), there are approximately 70% world’s population in the developing and under-developed countries use plant as medicinal remedies.

Soepadmo and Wong (1995) stated that in certain area of Sabah and Sarawak, botanical exploration has been carried out intensively, indicating that the species diversity is very high and more forest products are to be harvested. Many researchers had compiled lists of medicinal plants used in certain areas such as in Sarawak by Chai et al. (1989), in Sabah by Fasihuddin and Hasmah (1992) and in Malaysia by Kamaruddin and Latiff (2002). One famous example of plant that has potential as source of medicine in Sarawak is Bintangor tree or *Calophyllum lanigerum*. One of its compound is effective in healing HIV virus that are responsible for AIDS. This is why nowadays the researcher eager to discover new native plants that may have medicinal values in it.

Malaysia is one of the most multi-ethnic country in Southeast Asia which consisting of 51% of Malay, 27% of Chinese, 11% of the indigenous communities or known as Bumiputra, 8% of Indian, and 3 % of other ethnic groups (Kamil and Teng, 2002). Sarawak is one of the 13 states in Malaysia that dominated by native communities such as Malay, Iban, Bidayuh, Melanau and other minor ethnics. The population of Sarawak is roughly around 2.1 million where the Ibans dominate Sarawak at 29.1% of the population,
followed by 25.9% Chinese, and Malays of 22.3% and the rest are minor indigenous ethnics such as Bidayuh, Kayan, Kenyah and Orang Ulu (Berma, 2003). Therefore, each ethnic practiced different belief in traditional healthcare long before the introduction of modern medicine. However, forest as main source of medicinal plants are in increasing loss due to human factor such as deforestation, cultivation, over grazing, burning and erosion. According to Yule (2010), 45% of forest in Southeast Asia, including Malaysia, has been exploited through logging. Our biodiversity have been depleting up to 1,000 times the natural rate of extinction and it was estimated that 40% of plants will be extinct by 2050 (Yule, 2010).

1.1 Problem Statement

Over-exploitation of forest affecting the life of rural communities nearby since they depended on forest as source of food, shelter and also medicinal plants. Moreover, detailed information on medicinal plants is lacking from older generation to younger generation and traditional healers and practitioners were exposed to modern medicine. Therefore the knowledge of medicinal plants were not well inherited. Younger generations may not even know the traditional healthcare knowledge that was once practiced by their ancestors since the habitat of plants is destroyed and improper traditional healthcare knowledge inheritance. Plenty of scientific studies on ethnobotany of medicinal plants had been done on traditional knowledge of healthcare among Ibans community in Sarawak but this study focused in Tatau area only.
1.2 Objectives

The objectives of this study are:

1. To identify medicinal plants used by Iban communities of selected longhouse in Tatau, Bintulu.
2. To document and describe plants, parts used to treat ailments and its methods of preparations for medicinal purposes.
CHAPTER 2: LITERATURE REVIEW

2.1 Ethnobotany Study

Ethnobotany, a study of plants used by rural indigenous communities, was initiated by John Harshberger, an American botanist in 1896. Ethnobotany study consisted of four expected main achievements which are documentation of traditional botanical knowledge, quantitative evaluation of utilization and management of resources, experimental assessment benefits from plants for subsistence and commercial value and applied projects that maximize values attained by local communities for their ecological knowledge and resources (Martin, 1995). Study of ethnobotany collaborated with economists, linguistics, anthropologists, ethnopharmacologists, ecologists and botanists produce more accurate and detail information of medicinal plants (Martin, 1995).

Ethnobotany plays an important role in nature conservation, biological diversity and human culture tradition. Khan et al. (2012) stated that ethnobotany documented the secret uses of plants. It is an emerging science that has vital role in plants and plant products improvement. Ethnobotany helps us to understand and interpret knowledge of plants whereby we are and will be enabled to deal with them effectively and sustainably throughout the world. Plants has a very important role to human and therefore sustainability is very crucial where sustainability defined as the use of resources at a rate where it is slower than that at which they are being created.

According to Bussmann (2002), many people believe that indigenous people should have financial benefits from commercializing products identified by indigenous people. However, many companies mining for ethnobotanical leads are doing it in libraries,
screening information gathered by anthropologists, ethnobotanists and others, published it and placed it in public domain.

2.2 Medicinal Plants in Malaysia

Medicinal plants are nature’s gift to human beings to promote disease-free life. Malaysia’s rainforest are the lungs of the globe that cover only a fraction of the earth’s surface but yet they are the source of the medicinal plants. According to Soepadmo (1991), there are approximately 35,000 species of medicinal plants among 50,000 plants in the world and about 10,000 species of medicinal plans were used regularly among human. Medicinal plants are important where local communities depends on it for their primary healthcare, contributes in making of modern drugs by providing the ingredients, and can be consume as conventional medicine such as herbal teas and food supplement.

Malaysia are dominated by three ethnics generally which are Malays, Chinese and Indians. Studies done by Rashidi et al. (2014) and Jamal (2006) reported that there are about 42 species of plants have been used in traditional Malay medicine in Malaysia while traditional Indian and Chinese medicine systems are still not well documented at that time. Study by Latif (1997) reported that there are about 2,000 species of plants used for medicinal purpose in Malaysia generally. However, most medicinal plants are wild species and can only be obtained from forest. Hamilton (2003) said that the loss of biodiversity affects greatly in availability of medical plant resources. The species extinction is at frightening rate. People tend to forget that medicinal plants still have dominant role in
nations especially in these era of booming research in receptor pharmacology, molecular biology and computerized drug design (Bussmann, 2002).

2.3 Conservation of Medicinal Plants

Medicinal plant are facing extinction and great loss. No conservation action taken on majority of endangered plants with medicinal values and it is proven that there is only little source of medicinal plants in gene banks and forest. Researchers are too busy exploring and discovering new drug from plants and pay less attention to traditional plants used by local communities for healthcare. When the local communities were asked whether they still rely on herbal treatment for healthcare, the answer is that not all medicinal plants are used nowadays. The reasons are only the elders know about medicinal plant and where to obtain it, methods preparation of medicinal plants are time-consuming, some religion ban biological material for healthcare, younger generations loss their interest in inherit the traditional knowledge, migration of local communities to urban area and clearing of primary forests (Kulip, 2003).

Study of ethnobotany itself helps in introducing and providing medicinal plants to the world. According to The World Health Organization, The World Conservation Union, and World Wide Fund for Nature (1986), the government should recognize and support one or more institutions to plan, coordinate and implement ethnobotany study, selected institutions should survey on medicinal plants used among local communities, and data obtained from ethnobotany study should be analyzed but the informants or local communities should have benefits from medicinal plants’ commercial to some extent. They
also stated that The Ministry of Health should support and helps to prove plants remedies in health service. More herbarium and botanical libraries should be added to assist the conservation of plants and national herbarium should identified endangered medicinal plants so that priority can be made in conservation programs.

2.4 Iban Traditional Healthcare

Reports of medicinal plants used by Iban community in Sarawak were then documented by several researchers. According to Sinaga et al. (2015), there are about 68 species used by Iban communities in West Kalimantan to treat 16 different diseases such as gastrointestinal problems (28%), wounds (9%), and postpartum care (9%). They found out that gastrointestinal problems is the major one and the five important plants to treat this ailment are Arcangelisia flava (Mengkunyit), Curcuma domestica (Kunyit), Eleutherine palmifolia (Bawang Dayak), Eurycoma longifolia (Tongkat ali), and Myrmecodia tuberosa (Sarang semut).

Yusro et al. (2014) reported that there were 8 species of plants used to cure fever among the Dayaks Iban in Merakai Panjang Village Kapuas Hulu Regency situated in West Kalimantan Province. He listed few medicinal plants to treat fever such as the leaves of Carica papaya (Betik), Geunsia petandra (Tamar Besi/Ambong), Paedaria feotida (Kokontut/Daun kentut), Ceiba petandra (Kapuk), Elateriospermum tapos (Kelampai), Eurycoma longifolia (Tongkat ali), Asplenium nidus (Rajang), Arangelisia flava (Mengkunyit/ Temu akar), and Litsea odorifera (Medang). According to Jarvie (1994), a research done in Lambir National Park, Miri resulted in the finding of Goniothalamus
velutinus (Kayu hujan panas) used for stomachache and Dryobalanops lanceolata (Kapur) used as antiseptic properties.
CHAPTER 3: MATERIALS AND METHODS

3.1 Study Area

The study was conducted in four longhouses of Iban communities in Tatau, Bintulu. Four longhouses chosen in Tatau area for this study were Rumah Henry anak Usit, Rumah Joshua anak Renang, Rumah Jimbai anak Bandir and Rumah Randi anak Belada. These longhouses were situated approximately 1 hour travel by road from Bintulu city. [Figure 3.1]. The nearest clinic or hospital was 2-hours drive in Bintulu. There was no road available before and the local people only depended on water-based transportation such as boat or express boat which took more about 4 to 5 hours to reach the clinic. Therefore, plants dependency for medicinal purpose was very high last time.

![Figure 3.1 Map of Tatau-Bintulu Area in Sarawak.](image-url)
3.2 Field Methods

Information on medicinal plants used by Iban community was obtained through observation and interviews.

3.2.1 Observation

A preliminary survey was conducted before the field work of collecting information of medicinal plants started. General information of the study site and identifying knowledgeable person on medicinal plants were done by approaching and asking the head of longhouse, called *tuai rumah*. According to all *tuai rumah*, the knowledgeable people are those who were once a midwife, traditional healer and a practitioner of traditional medicine.

3.2.2 Interview

Interview was conducted in both home and at field by using open-ended questions through informal conversations. This method were selected because most of the respondents were elder people who can’t read or write. There were 44 respondents of various age including traditional healers, practitioners such as midwives, housewives, farmers and anyone who has knowledge on medicinal plants. This interview was done to obtain information on plants used for ailment treatment, its vernacular name, part of plants used and method of preparation (Appendix 1).
3.3 Data Analysis

The ethnobotanical information from the survey was listed in a table with details such as vernacular name, plant parts used, its function and collection number. The samples are identified until species name or at least family name.
CHAPTER 4: RESULTS AND DISCUSSION

4.1 Demographic Analysis

44 respondents were interviewed among Iban community in longhouses in Tatau. Each of four chosen longhouses has different number of room or known as bilek with approximately 17 rooms for each longhouse. A total of 44 respondents were interviewed for their knowledge on medicinal plants. These respondents can be categorized into two groups of age which are adult and elderly group. Most of the respondents interviewed were at the range age of 41 to 64 years old, which consists of 30 respondents while 14 respondents were at the age of 65 years and more. There were 17 male respondents and 27 female respondents.

Generally, respondents from the group age of 65 years old and above were farmers and babysitting their grandchildren. Meanwhile respondents from the group age of 41 to 64 years were either farmers, housewife or working as a general worker in oil palm industry nearby. Only 1 respondent from this age group interviewed was a teacher [Figure 4.1]. Apparently there was no respondent of the age group of young adult and below because only few of them lived in longhouses where when interviewed, they didn’t have any knowledge on medicinal plants. Among 44 of the respondents, only one respondent was a midwife which at the group age of 65 years and above. There were only a few practitioners of traditional medicine before and the rest were only having some information in traditional medicine. The practitioners before who work as farmers now were apparently the most knowledgeable among all the respondents.