



Faculty of Resource Science and Technology

**AN ETHNOBOTANICAL STUDY OF MEDICINAL PLANTS USED BY MALAY
COMMUNITY IN KG.SEMERA, SADONG JAYA, SARAWAK**

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**Bachelor of Science with Honours
(Plant Resource Science and Management)
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**An Ethnobotanical Study of Medicinal Plants Used by Malay Community in
Kg. Semera, Sadong Jaya, Sarawak**

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This thesis is submitted in partial fulfilment of the requirement for the degree of
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Final Year Project Report

Masters

PhD

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ABSTRACT

Ethnobotany is the study of interactions between people and plants and most commonly refers to the study of indigenous used of plants. The aim of this study is to identify and document the medicinal plants used by Malay community in Kg. Semera, Sadong Jaya, Sarawak. This study was conducted for 11 months duration starting from July 2014 to Mei 2015. The semi-structured interviews to 60 respondents were conducted to obtain ethnobotanical informations. From this study, 37 species that belong to 26 families of medicinal plants were identified for medicinal use. The most frequent family of medicinal plants used is Zingiberaceae which has 4 species of medicinal plants. The treatment for hypertension, diabetes, cough, postpartum care, and removal of excess air inside body are the most commonly used for. The highest part of medicinal plants utilized is from leaves and the highest mode of consumption of medicinal plants is by drinking. The ethnobotanical knowledge of medicinal plants in Kg.Semera should be documented in order to conserve these knowledge for the reference of younger generations and for a future research on these medicinal plants.

Keywords: Ethnobotany, medicinal plants, Malay community, Sarawak

ABSTRAK

Etnobotani ialah kajian interaksi antara manusia dan tumbuh-tumbuhan dan merujuk kepada kajian penggunann tumbuh-tumbuhan oleh masyarakat asli. Tujuan kajian ini adalah untuk mengenal pasti dan mendokumentasikan tumbuhan perubatan yang digunakan oleh masyarakat Melayu di Kg. Semera, Sadong Jaya, Sarawak. Kajian ini dijalankan dalam tempoh 11 bulan bermula dari bulan Julai 2014 sehingga Mei 2015. Temu bual separa berstruktur kepada 60 orang responden telah dijalankan untuk mendapatkan maklumat etnobotani. Daripada kajian ini, terdapat 37 spesies milik 26 famili tumbuhan perubatan telah dikenal pasti untuk kegunaan perubatan. Famili yang paling kerap digunakan sebagai tumbuhan perubatan ialah daripada famili Zingiberaceae yang mempunyai 4 spesies tumbuhan perubatan. Rawatan untuk tekanan darah tinggi, kencing manis, batuk, penjagaan selepas bersalin, dan penyingkiran udara berlebihan dalam badan adalah yang paling biasa digunakan. Bahagian tumbuhan perubatan yang paling tinggi digunakan ialah daun dan kekerapan mod penggunaan tumbuhan perubatan ialah dengan meminum. Pengetahuan etnobotani tumbuhan perubatan di Kg.Semera perlu didokumentasikan bagi memelihara ilmu ini untuk rujukan generasi muda dan bagi kajian yang akan datang tentang tumbuhan perubatan ini.

Kata Kunci: Etnobotani, tumbuhan perubatan, komuniti Melayu, Sarawak

1.0 INTRODUCTION

1.1 Research Background

Malaysia is one of the world's 12 mega biodiversity which possessed oldest tropical rainforest. Tropical rainforests covered between 59% to 70% of Malaysia's total land areas and it is a place for habitats of many tropical flora and fauna. Tropical forest in Malaysia has contributed many benefits including wood forest product (WFP) from timber and also non-wood forest product (NWFP) such as for food, shelter, cloth, resin and medicine. Ahmad (2003) stated that about 1,200 species of higher plants in Peninsular Malaysia and 2,000 species in Sabah and Sarawak are reported to have medicinal values and have been used for generations in various traditional health care systems.

Ethnobotany is the study of relationship existed between people and plants. Field of ethnobotanical studies are not only limited to how plants were used by indigenous people, but also how they are perceived and understood within different cultures (Sinha, 2012). In Malaysia, the early years of ethnobotanical literature pertained mostly about medicinal plants and the documentation of the traditional knowledge. Accordingly, there had been active participation on the ethnobotanical research in Malaysia in the past 20 years (Jantan, 2004).

Medicinal plants or herbalism utilized the whole plants or parts of plants for therapeutic or medical benefits (Nahata, 2013). With vast number of tropical forests and diverse source of plant species, the practice of using plants as a source of traditional medicine is still the most preferable alternative method for treating ailment among Malaysian both in older and younger generation. Medicinal plants have been acknowledged by Malaysians as one of the important and still actively

practice medicinal tradition since many centuries ago. Ancestors have been using medicinal plants to treat many common ailments and diseases such as fever, itch, cough, high-blood pressure and for postnatal care. Previous studies found that 90% of arthritic patients use alternative therapies such as medicinal plants for treating arthritis (Seekers, 2013). As example, various ethnics in Malaysia including Malay, Indian, Chinese, Iban and Kadazan have their own knowledge of using plants as traditional medicine. Thus traditional medicine is not a newfound knowledge among various ethnics in Malaysia. However, traditional knowledge and usage of medicinal plants is decreasing due to two main factors. The modern medicines are easily available, so the younger generations are less interested in practicing and knowing the traditional medicines. Exploitation of forest and environment actually caused many medicinal plants to be less available or unavailable (Ong et.al, 2012).

Although there has been an increase in the consumption of modern medicine among younger generations, but medicinal plants are still being as an alternative preferred by some generations today as there are many potential benefits obtained from the use of medicinal plants. Medicinal plants have higher natural plant compounds and have no foreign additional manufactured chemicals, hence considered safe to health, whereas modern medicine is either extracted from plant or animal compounds and adding foreign chemical and drug. The use of medicinal plants to treat minor ailments is more common and preferable in developing countries because of the high cost of health maintenance (Hoareau & DaSilva, 1999). The role of medicinal plants also cannot be abandoned despite the increase in demand of modern medicine production and consumption nowadays. This is because medicinal plants constitute the major ingredient for

the production for many modern medicine nowadays. Herbal medicine also important for the improvements in analysis and quality control along with clinical research to treating diseases (Seekers, 2013).

Nowadays, with the increase in knowledge on modern medicine, the younger generations seem to have little exposure knowledge on medicinal plants practices as compared to older generations. Thus it is important for these generations to play a big role to study and document knowledge of medicinal plants. It is to preserve the knowledge from being vanished as the effects of rapid modernization. Furthermore, the ethnobotanical study is being conducted in certain areas with the aim to adding some new found knowledge to the previous research that have been conducted.

1.2 Problem Statements

Sarawak is one of the states in Malaysia which comprised of many number of ethnics and contain many unique multicultural practices especially in practice of using medicinal plants. Today, the practice of medicinal plants rapidly declining among younger generations. Other than that, there is also serious lack in efforts on documenting the medicinal plants used by different ethnic groups especially among the Malay community in rural part of Sarawak. In addition, there are various medicinal plants uses and consumption methods by Malay community in Kg.Semera, Sadong Jaya, Sarawak.

1.3 Objectives

- (1) To identify the medicinal plants used by the Malay community in Kg.Semera, Sadong Jaya, Sarawak.
- (2) To document the parts of plant, preparation and modes of consumption of medicinal plant species used by Malay community.
- (3) To describe the ethnobotanical and medicinal values of medicinal plants used by Malay community in Kg Semera.

2.0 LITERATURE REVIEW

2.1 Ethnobotanical study

The term ethnobotany was coined in 1895 by the North American botanist John Harshberger to describe studies of “plants used by primitive and aboriginal people” (Balick and Cox, 1996). Martin (1995) defines ethnobotany as all studies concerning plants which describe local people’s interaction with the natural environment (Bangladesh Ethnobotany Online Database, 2014). On the botanical side of the field, few ethnobotanical studies are concerned with plants that have no connection to people. On the ethno side, most studies are concerned with the ways indigenous people use and view plant (Balick and Cox, 1996).

Ethnobotany plays a crucial role in the study of traditional medicine (Pei, 2005). The importance of medical ethnobotanic research has been growing, since potential sources for drugs could disappear in the future as a result of the rapid loss of biodiversity (Balick and Cox, 1996). World Health Organization (WHO) has made an attempt to identify all medicinal plants that exist in the world. It comprises of binomial names of medicinal plants, countries where the plants were used, and what the plants are used for (WHO, 2002).

Ethnobotanical conservations lead by government institutions and universities in Malaysia such as Universiti Putra Malaysia (UPM), Universiti Malaya (UM) MARDI and Forest Department are engaging serious effort to document the knowledge of medicinal plants for use of present and future generations (Rudebjer et.al, 2009). The steps towards conservations purpose include creating systematic biodiversity and ethnobotanical databases which gather information about plant taxonomy, distribution and genetic resource (Rudebjer et.al, 2009).

2.2 Traditional Medicines in the Malay Community

Malaysia is a unique country comprises of many ethnicity. There are three major ethnics in Malaysia such as Malay, India and Chinese. Malay is the largest ethnic population in Malaysia which makes up of 56.4 % as major inhabitants in Peninsular Malaysia and East Malaysia. According to Pillay (2006), Malay people has been recognized to be rich in traditional culture in various aspects such as music, art, food, costume, architecture, beliefs, and medicinal purposes.

Traditional medicine is one of the most valuable practice inherited from the traditional culture among Malays in Peninsular Malaysia and East Malaysia. In Malay society, traditional treatment methods are being conducted by the shaman or knowledgeable person using incantation, medicinal plants and some included the Quran recitation (Rahamatullh, 2013). The medicinal plants used are either eaten raw, prepared into dried powder or paste form to apply on the treatment area, or as drink (Lone, 2013).

There are over 20,000 medicinal plant species (accounting for over 10% of the world's total number of plant species) some of which are unique only to Malaysia (Soepadmo, 1992). This pointed out Malaysia as one of the world's famous country with natural vegetation and associated with traditional medicine practice. For example, Malays have been using *Annona muricata* L, locally known as sour soap fruit for the remedies of dysentery and diarrhea (Wuart, 2006). *Carica papaya* L. is used during the confinement period by rubbing its pastes to the body of postnatal women. The latex is used to remove skin patches (Wuart, 2006).

2.3 Importance of Medicinal Plants

It is undeniable that medicinal plants have many advantages in terms of the culture, medicinal value, economic value and ongoing research. Traditional medicinal knowledge is the heritage from past generations of ancestors. It has begun to be practiced by the ancestors and many sacrifices have been done in an effort to get the greatly effective traditional treatment. It is believed that the ancestors have been going through a lot of trials and errors to select the effective methods of preparing medicinal plants from various parts such roots, barks, flowers, leaves, and fruits (FAO, 2014). From the perspective of some communities, their usage of herbals cannot be abandoned as it is part of the culture and belief for them to maintain health or to treat certain ailments.

Apart from that, medicinal plants also provided medicinal values to people who consume it. This is because most of the medicinal plants prescribed by the folks are considered in healing many ailments and chronic diseases. Besides its effectiveness, medicinal plants are preferable choice for treating ailments as it is relatively cheaper and has no side effects to the body. In Pakistan, it is estimated about 80% of its population still depends on plants to cure sickness or illness (Botanical Online, 2014).

Medicinal plants also help in increasing the economic income of the country. In 1999, Malaysians spent about RM2.0 billion on herbals and more than 8000 herbal products were registered with the Ministry of Health (OIC, 2015). This showed that the herbal market in Malaysia is highly potential and receive a lot of encouraging responses.

Medicinal plants knowledge provides big support for future research of the modern medicine. More than 60–70 % of modern medicines in the world market are directly or indirectly derived from plant products (Hussin, 2001). Medicinal plants frequently used as raw materials for extraction of active ingredients which used in the synthesis of different drugs. Several significant modern drugs such as digitoxin, reserpine, and aspirin had their origin based on medicinal plants extractives (Ghorbani et.al, 2006). Studies show that natural food ingredients and medicinal plant are able to boost metabolism, and speedup weight loss (Larson et.al, 2009).

3.0 MATERIALS AND METHODS

3.1 Study Area

This study was conducted at Kg. Semera, Sadong Jaya, which is situated in Sadong Jaya Sub-District in Kota Samarahan Division, Sarawak. Kg. Semera is located at between 1°32'53"N latitude and 110°40'15"E longitude. It has a population of 4631 residents. Kg. Semera is located about 60 kilometres from Kuching. The physical topography in Kg. Semera is a lowland area of peat swamp forest and situated near Semera River. Table 3.1 shows the location of the study village and the selected sub-village of Malay community in Kg.Semera.

Table 3.1: Location of study area

No	Location	Village	Sub-villages
1	Sadong Jaya, Kota Samarahan	Semera	Semera Hulu Semera Masjid

3.2 Study Methods

The ethnobotanical study was conducted within 11 months, starting from July 2014 until May 2015 (refer to work schedule). For data collection, methods used include: Interview, Plant Collection, and Herbarium Specimen Preparation.

3.2.1 Interview

The interviews were conducted to villagers in Kg Semera Masjid sub-village and Kg Semera Hulu sub-village. A semi-structured interview with questionnaire forms was conducted to obtain ethnobotanical knowledge in study area and to collect data for the study, along with formal conversations with the respondents. During the interview, 60 respondents of Malay community were asked about the medicinal plants they used to treat various ailments and diseases. These respondents who were selected comprised of the villagers who have the knowledge on medicinal plants used in Kg. Semera. The plants local name, use, part of plant used, its preparation and modes of consumption were recorded in questionnaire form. (*Refer to Appendix A*)

3.2.2 Plant collection

Plant collection was conducted after each interview session to collect the medicinal plants for voucher herbarium specimen. The fresh plants samples were collected almost nearby villager houses in Kg Semera. The pictures of the medicinal plants were captured for reference purposed. The medicinal plantspecimens were collected using standard taxonomical procedures, taking specimens with flowers and fruits whenever possible (Ong et.al, 2012). The plant samples were wrapped in newspaper and brought to Herbarium of Faculty of

Resource Science and Technology (FRST) Unimas for herbarium specimen preparation and plant description.

3.2.3 Herbarium specimen preparation

The collected plant samples were pressed flat in newspaper and preserved in 50% ethanol for one week. After that, the preserved specimens were brought to Unimas external lab to be dried inside oven for two week. The specimens to be dried must be pressed in between two wooden frame and tighten to extract moisture in the shortest period of time (Frank and Perkins, 2015). For mounting process, the dried plant specimens were mounted in a V shape onto a thick paper preferably acid-free. Any unnecessary or large portions of plant parts were trimmed.

3.3 Data analysis

In data analysis, the data collected on information about the demographic study of the respondents was analyzed. The data collected on the ethnobotanical information of the medicinal plants such as scientific name, family name, local name, uses, parts of plant used, and modes of consumption were also gathered in pie chart, graph or table form to be analyzed. The ethnobotanical values for each medicinal plant species were also been discussed.

4.0 RESULTS AND DISCUSSION

4.1 Demographic Analysis

In the ethnobotanical study conducted in two sub-villages in Kg Semera, which were Kg Semera Masjid and Kg Semera Hulu, a total number of 60 respondents were successfully interviewed for their knowledge in the medicinal plants used by the villagers there. There are two parameters used for demographical analysis of the respondents which are age of the respondents and occupation of the respondents.

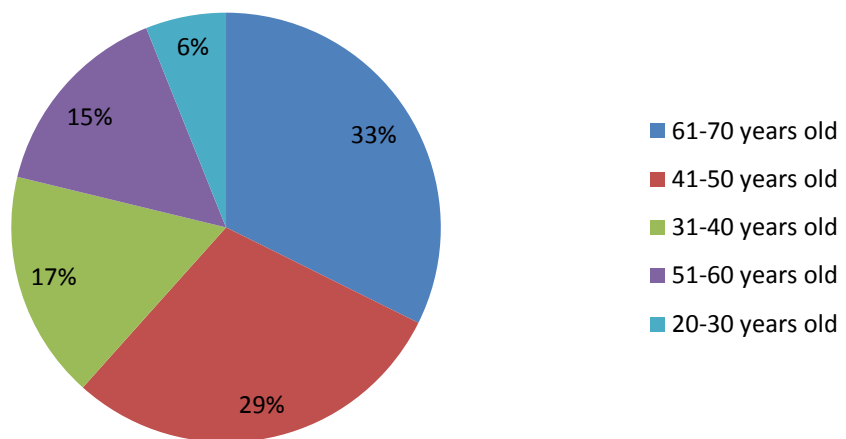


Figure 4.1 (a) Age of respondents

Figure 4.1(a) above shows the age of the respondents obtained from conducting semi-structured interviews. Based on this study, it showed the highest number of respondents were from the older people, which are in the age of 61-70 years old. This is because older generations are more experienced and knowledgeable in using medicinal plants compared to younger generation, as they have relied to medicinal plants to treat many ailments due to difficulties to go to nearby town to get modern medicines supply back then.

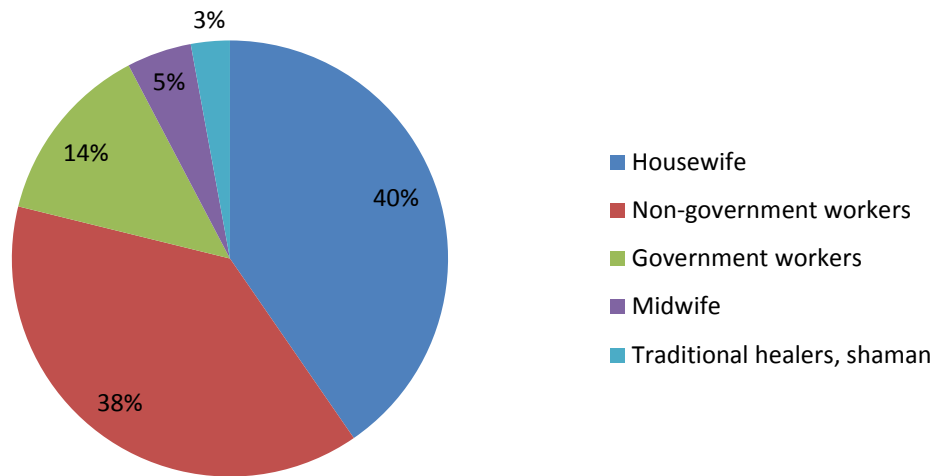


Figure 4.1 (b) Occupation of respondents

For the occupation of the respondents, the highest number of respondents from the interview was housewife, followed by non-government workers such as fisherman, farmer and factory workers, government workers, midwife, and lastly traditional healers/shaman. Midwife and traditional healers/shaman are also the most knowledgeable villagers who practice the uses of medicinal plants in their occupation and daily life. Somehow they are the least number of respondents amongst the other respondents occupations as there are little number of villagers who are known as midwife or traditional healers/shaman in Semera village.