An Ethnobotanical Study of Medicinal Plants Used by Malay Community in Selected Village in Jempol Negeri Sembilan

Izzati Nurshakira Binti Md Aris (30460)

Bachelor of Science with Honours (Plant Resource Science and Management) 2014
An Ethnobotanical Study on Medicinal Plants Used By Malay Community in Selected Village in Jempol Negeri Sembilan.

Izzati Nurshakira Binti Md Aris

30460

This thesis is submitted in partial fulfilment of the requirement for the degree of Bachelor of Science with Honours Plant Resource Science and Management

Plant Resource Science and Management
Department of Plant Science and Environmental Ecology
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Universiti Malaysia Sarawak
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II
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An Ethnobotanical Study on Medicinal Plants Used by Malay Community in Selected Village in Jempol Negeri Sembilan

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ABSTRACT

Ethnobotanical study is the study of interaction with a particular emphasis on traditional tribal cultures. Considering the importance of ethnobotanical study, a study was carried out on the traditional knowledge and usage of medicinal plants among the Malay communities at two selected village in Jempol Negeri Sembilan. Information was obtained from survey by talking with respondent by interviewing also with semi-structured questionnaire. The samples of medicinal plants collected along the interview were preserved as herbarium specimens at Herbarium of Faculty of Resource Science and Technology. A total of 69 species belonging to 43 families was recorded where family Zingiberaceae has the highest number of species and family Cucurbitaceae has the least number of species. Most species are herbs, followed by trees, climbers and shrubs. Plants parts most commonly used include leaves, fruits, flowers, roots, whole plants, rhizomes and stem, with the leaves as the most reported used. The plants were used externally, internally and also external-internal application. The most disease can be treated by medicinal plants collected are hypertension, diabetes, postpartum period, skin problems, and as an anti-aging.

Keywords: Ethnobotany, Medicinal plants, Malay community

ABSTRAK


Kata kunci: Ethnobotani, tumbuhan ubatan, penduduk Melayu
1.0 Introduction

Malaysia is one of the rainforest countries which have high value of biodiversity. The country has about 7000 species of flowering plants and 600 species of ferns recorded. A study has been stated about 1150 species of plants are reported to have medicinal properties (Chee et al., 2002). Malaysia is rich in biodiversity and has large diversity of ethnic, culture and religion. Malaysia has three main communities which are Malay, Indian and Chinese, and also has indigenous people and Bumiputra in Sabah and Sarawak. In the Malay communities, which also including the middle eastern descent and Indonesian people, they are divided into various ethnic, for example Jawa, Bugis, Minangkabau, Acheh, Rawa and Maindailing based on the locality in Negeri Sembilan.

As for Chinese, they are grouped based on their ethnolinguistic group, for example Hakka, Hokkien, Cantonese, Teochew, Hainanese, Hockchiew, Kwangsai, Henghua, Hockchia and some other minority groups. Indian on the other hand are divided in smaller sub-ethnic, for example Tamil, Malavali, Telegu, Kamara, Sikh and Punjabi. In terms of indigenous people, they are divided to three tribes which are Negrito, Senoi and Aboriginal Malay. In Sabah and Sarawak, Bumiputra consisting of Melayu, Iban, Bidayuh, Kadazan and many more make up the indigenous people of Malaysia. Malaysia is unique with the multicultural which lead to different ways in the usage of medicinal plants.

In addition, the ethnic people who stay in different geographical belts around the world depends on wild plants to meet their basic requirements and all the ethnic communities have their own pool of secret in ethnomedicinal and ethnopharmacological knowledge about the plants available in their surroundings (Rajbhandari, 2001). The difference in lifestyles makes the practices and dependence on medicinal plants also
become different. Knowledge in ethnobotany has been widely used as traditional medicine for a long time ago and the knowledge were passed down from one generation to another.

Ethnobotanical study on different ethnics should be a continuous effort which will provide avenues for future generation. In addition, Bapuji and Ratnam (2009) mentioned that several wild medicinal plants are fast disappearing due to the destruction of forest by inhabitants, invasion of exotic flora and introduction of new crop, hence, there is an urgent need for exploration and documentation of this traditional knowledge in order to ascertain the conversation value of the local ethnomedicinal plants of the forest.

The used of medicinal plants in Malay community has been widely used especially in the village areas, since there were likely easier to get compared to town. In Jempol Negeri Sembilan, the population of Malay community are much bigger than other community. There is very lack or no documentation of this ethnobotanical knowledge was carried out pertaining the Malay communities in Jempol. Hence, this study will focus on the Malay community in Jempol in the uses of medicinal plants and is an attempt to identify and document the medicinal plants species used as much as possible in the way to preserve it. Cunningham (1993) clearly stated that sustainable management of traditional medicinal plant resources is important, not only because of their value as a potential source of new drugs, but due to reliance on traditional medicinal plants for health.
1.1 Problem Statements

In Malaysia, herbs and medicinal plants have been used since centuries ago. Many traditional healers use medicinal plants to prevent, alleviate or cure several human diseases especially in rural areas. However, due to the modern development and urbanization, all those valuable medicinal plants have been ignored. The harvesting of medicinal plants by cash-needy collectors to supply the growing urban and international markets has increasingly intensified since these materials are cheaper and more accessible. Hence, the numbers of medicinal plants keep on decreasing day by day, thus makes people nowadays prefer modern medicine more. The documentation of medicinal plants is also lacking in Malaysia compared to other developing country.

1.3 Research Objectives

- To identify and observe the medicinal plants used by Malay communities in selected village in Jempol Negeri Sembilan.
- To document the medicinal plants, parts and medicinal value of medicinal plants used by Malay community in selected village in Jempol Negeri Sembilan.
2.0 Literature Review

2.1 Ethnobotany

Ethnobotany is defined as the study of relationship between plants and people. Ethnobotany is considered a branch of ethnobiology. Ethnobotany focused on how plants have been or are used, managed and perceived in human societies and includes plants used for food, medicines, divination, cosmetics, dyeing, textiles, for building, tools, currency, clothing, rituals, social life and music (Chaudary et al., 2008). Ethnobotany is a multidisciplinary field which may involve ecology, economics, public health, or whatever is needed to better understand the plants-people relationship.

In the past, basic quantitative and experimental ethnobotany only includes basic documentation, quantitative evaluation of use and management and experimental assessment. Today, ethnobotanical surveys include applied projects that have the potential to improve the economy of certain population. Other than that, these new approaches of ethnobotany enhance the quality of sciences, provide compensation for the cultural groups and take into account environmental concerns (Chaudary et al., 2008).

Ethnobotanical study by Mesfin et al. (2013) have reported 31 medicinal plants used by indigenous people of Gemad district, Northern Ethiopia, by interviewing and questionnaires of 16 selected traditional healers using purposive sampling method. By Chaudary et al. (2008), many system of therapy or traditional systems have been developed primarily based on plants such as Ayurveda, Homeopathy, Sidda, Unani and so on to treat illness, ailments and disease as well as to maintain body health.
2.2 Ethnobotanical Study in Malaysia

Ethnobotanical study in Malaysia has already been reported since 19th century ago, in which emphasise on the traditional uses of plants by the Malay villagers of Peninsular Malaysia. Halijah et al. (2000) said that the use of plants in traditional medicines is perhaps the most significant and among the early reports on the Malay traditional medicinal materials. All the earlier records have been summarised on the medicinal uses as well as other economic importance and uses of various plant families (Chee et al., 2002).

In general, ethnobotanical study of medicinal plant in Malaysia was done in smaller scales which involve only districts or several villages. On top of that, most of the study was done towards one population such as Malay population and indigenous people. Ong et al. (2012) collected 37 species of medicinal plants species used by Semai Orang Asli at Tapah Perak while 56 species of medicinal plants collected among the Malay villagers in Kampung Mak Kemas, Terengganu (Ong et al., 2011). The ethnobotanical study was important as it describes the knowledge on certain population which may not be known by other population. It is also important in order to preserve the knowledge and important roles in human life (Fasihuddin, 2008; Umi et al., 2008; Chee et al., 2002).
2.3 Medicinal Properties of Medicinal Plants

Medicinal plants refer to plants which have medicinal value that can treat or cure human disease. The term medicinal plants include a various types of plants used in herbalism and some of these plants have a medicinal activities. Medicinal plants consider as a rich resources of ingredients which can be used in drug development and synthesis. Medicinal plants also consider as important source of nutrition and as a result of that, these plants are recommended for their therapeutic value (Hassan, 2012).

The medicinal properties of medicinal plants are various. The major properties of medicinal plants are as supporting the official medicinal plants and also as preventive medicine. Medicinal plants as supporting the official medicine such as in the treatment of complex cases like cancer proved that the used of medicinal plants components was very effective. Medicinal plants as preventive medicine has been proved that components of medicinal plants have the ability to prevent the appearance of some diseases. This will help to reduce the use of chemical based drug or reduce the effect of synthetic treatment which later can lead to other complication in the patient’s body (Hassan, 2012).

Various plant play an important role in cancer therapy either as direct anti-cancer agent, chemopreventive agent, radiosensitizer or immunity enhancer by many active components found in certain medicinal plants (Dhanukar et al., 2000). The active component or antioxidants play the important roles in treating illness, ailments and disease found in all 44 species of medicinal plants where flavonoids and tannins are potent antioxidants followed by ascorbic acid and alkaloids. This founding proved that alkaloids, cathechins, carotenoids, tocopherols, phenolics and tannins found in medicinal plants can help in curing some human disease (Sati et al. 2010).
Hafeel and Shankar (1999) believed that pharmaceutical researchers acknowledge that screening plants on the basis of information derived from traditional knowledge saves billion dollars in time and resources. The significance of doing research on medicinal plants lies on how modern medicine were widely produced indirectly from medicinal plants and being use directly by majority cultures around the world.

Allophatic medicine is in fact highly dependent upon a range of substance produced by plants, but the fact that clinically useful chemicals are now being obtained from plants that have not been classified before as having ‘medicinal’ properties, is increasingly changing the parameters of medicinal plants which can be potentially regarded as medicinal (Lewington, 1993).

Furthermore, it has been stated that *Theobroma cacao* has rich source of polyphenols and reported having high antioxidants activity compared to teas and red wines. The polyphenols in cacao beans contribute to about 12 to 18% of the dry weight of the whole bean where the main classes of pf polyphenolic compounds are simple phenols, benzoquinones, phenolic acids, acetophenones, phenylacetic acids, hydroxycinnamic acids, phenylpropenes, coumarines, chromones, flavonoids, lignans and lignins (Hii *et al.* 2009).
2.4 Importance of Medicinal Plants

Food crops have medicinal effect and they can help in solving many health care problems which are gaining an increasing attention. Almost all of common food crops have the ability in maintaining health. Food crops like *Theobroma cacao* has abilities used as emollient for skin massages as well as for healing chapped lips, and for nursing women, cacao was used as remedy to heal sore and cracked nipples (Wilson, 2014).

*Carica papaya* is believed to be able to cure cough when taking it orally with honey bee (Mohammad *et al.*, 2012) and can also reduce fever, hypertension, pimples, skin blemish and constipation (Ong *et al.*, 2011). Other than that, *Aloe vera* are used to treat stomach upset, poor digestion (Khatun *et al.*, 2011) and to make hair shiny, poultice wounds and as skin conditioner (Ali *et al.*, 2010). Bapuji and Ratnam (2009) documented 47 diseases which can be treated by 90 Angiosperms plants species and there are four main families commonly used among the Malay communities in Kuala Lipis-Merapoh area which are Rubiaceae, Lauraceae, Leguminoseae, and Verbenaceae (Chee *et al.*, 2002).
3.0 Material and method

3.1 Study area

The study was conducted in selected village in Jempol Negeri Sembilan. Jempol is located at boundary to Bera district of Pahang and Segamat district of Johor. Jempol is the biggest district in Negeri Sembilan comprising various races, ethnic and communities, in which Malay communities as the major. Two villages have been selected where majority residents are Malay. The selected village are Kampung Serting and Kampung Batu Kikir. Both of these village are the biggest village in Jempol district.

3.2 Interviewing Local Communities

Interviews were conducted from April 2014 until September 2014. The interview techniques chosen are open-ended and semi-structured questionnaire questions. The open-ended interviews were done to obtain information about the species of medicinal plants on the parts used and the route of administration. The interview was based on questionnaire, covering the respondent demographic information, local name of medicinal plants, used of medicinal plants, parts used and also route of administration [Appendix A].

3.3 Preparation of Herbarium Specimens

All collected samples were preserved as herbarium specimen and kept in Herbarium University Malaysia Sarawak (HUMS). During the collection, plant locations were observed and the habitat information was recorded. All morphological characteristics which would not be seen in dried specimens were recorded. Field notes and specimen tags were written using pencil. The collection number was used as specimen tag.
After collection, the specimens were soaked in 70% ethanol. Since the samples specimens were collected in Jempol Negeri Sembilan, the specimens were brought back to Sarawak and the pressing step were done at the Herbarium Universiti Malaysia Sarawak. Upon arrival at Sarawak, the sample specimens were pressed. The samples specimens were kept gently within newspaper. Only one plant sample specimen should be pressed in each newspaper to avoid confusion of the data. Unnecessary overlapping leaves and other parts were avoided. A few leaves must be turned over to show the lower part and the upper part view. After the sample specimens pressed, the plants were closed and the straps were tightened to apply pressure.

The pressed specimens were dried plant in dryer or big oven for a few days. After few days, the specimens were glued and sewed to a herbarium paper. Herbarium label was also glued at the lower right corner of the sheet. The herbarium label contains the heading, scientific name, locality, habitats, date of collection, name of collector, collection number, and description of the plant.

3.4 Data Analysis

All the ethnobotanical information gathered were compiled and analysed. The information includes scientific name, local name, family name, part used and route of application of medicinal plants were gathered in the table forms.
4.0 Results and Discussion

4.1 Demographic Information of Respondents

An ethnobotanical study on medicinal plants used by Malay communities was carried out between April to September 2014. Respondents were interviewed using semi-structured questionnaire and open interview. The data was successfully collected from 20 respondents. All of the respondents are local people to Jempol districts which are from Kampung Serting and Kampung Batu Kikir.

The respondents ages are between 20 to 60 years old. The senior generation (40 to 60 years old) have more and wider knowledge about medicinal plants compared to younger generation. They utilized medicinal plants in their daily life. Meanwhile for younger generation (20 to 39 years old), have different education background from high school level up to postgraduate students. Different education background gave different results in the quantity of the medicinal plants known where the higher the education level, the more information on medicinal plant successfully gathered. This is due to their wide knowledge through their reading and via media publication.