

Etnobotany of Medicine Plants in The Community of Pemandang Village, Rokan Hulu, Indonesia

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Abstract. This study aims to determine the plant species used as medicine by the community in Pemandang Village, Rokan IV Koto, Rokan Hulu District, Riau Province. This research was conducted in Pemandang Village, Rokan IV Koto, Rokan Hulu Regency, Riau Province in February-March 2020. This study uses qualitative descriptive techniques. The sample in this study amounted to 5 people. Samples were taken by snowball sampling technique. Data collection techniques used are direct observation, interview methods, and documentation methods. Overall the research results revealed that there are 18 plant species that are used as medicine by the community in Pemandang Village. In general, these herbs are used for fever, itching, and stomachache. These medicinal plants are planted in the yard of the house. For some species grow wild in the forest.

Keywords: Bioetnobotany, Medicinal Plants, Rokan Hulu

1 Introduction

Indonesia has a very high diversity of medicinal plant species. Around 80% of the total medicinal plant species in the world are found in Indonesia [1]. There are 940 species of medicinal plants out of around 30,000 plant species that have been used [2]. Since ancient times, Indonesian people have known and used various plant species as medicine to cure diseases.

Medicinal plants are plants that are used to reduce disease, eliminate disease, or cure someone from disease [3]. According to [4] medicinal plants are plants which one or all of their parts contain active substances that can be used to cure disease. The parts of plants that are usually used to cure diseases are roots, stems (bark), leaves, fruit, flowers, rhizomes and sap (resin). People usually make medicinal concoctions by boiling and pounding (squeezing). The use of the medicinal concoction itself is generally done in three ways, namely drinking it, applying it to it, or washing it with washing water. Use by drinking is usually for treating internal body organs, while the other two methods are for treating external body organs.

Pemandang Village was formed in 2007 based on the Decree of the Governor of Riau Number 14 in 2007 concerning the Determination of Pemandang Village. The area of Pemandang Village is 11,728 Ha, 39 km far from the sub-district government center, 59 km far from the district government center, and 162 km far from the provincial government center.

Public knowledge and understanding of plants that can be used as medicine is growing. People are starting to understand that the use of plants for medicine can be paralleled and complementary with modern medicine. The use of plants is often the first choice for treating various diseases.

Medicinal plants with various types, habitus and properties have great opportunities to be developed. The various benefits that result from maintaining medicinal plants are: welfare, conservation of various resources, and non-formal education. So, efforts need to be made to spread the use of medicinal plants. One of the stages that must be carried out before spreading the use of medicinal plants is the introduction of medicinal plants and the characterization of the medicinal plants themselves [5].

Recognition and characterization of medicinal plants can be done through ethnobotanical studies. Ethnobotany studies the traditional use of plants by primitive tribes, the ideas of which were presented at a meeting of the archaeological society in 1895 by Harsberger. Ethnobotany is an interdisciplinary branch of science, namely studying the relationship between humans and plants and their environment. Ethnobotany emphasizes how to reveal the relationship between people's culture and plant resources in their environment directly or indirectly. The emphasis is on the deep connection of human culture with the natural surroundings. Prioritizing the cultural perceptions and conceptions of community groups in managing the knowledge systems of their members in dealing with plants in their scope of life [6].

2 Research Methods

This research was conducted in Pemandang Village, Rokan IV Koto District, Rokan Hulu Regency. This research was conducted in February - March 2020. The instruments used in this research were field books and equipment. The population of this study was the entire community of Pemandang Village, Rokan IV Koto District, Rokan Hulu Regency. The sample is a part or representative of the population studied. This research uses a snowball sampling technique.

The data collection techniques in this research are:

a. Direct Observatio

The observation method is a direct observation method at the research location which aims to obtain research data.

b. Interview Method

The interview method was used to obtain information from the public during the research. This method is carried out using open and closed interviews, in order to explore in depth and comprehensively the required information.

c. Documentation Method

Documentation methods include photographing plants as a complementary basis for species identification.

The data analysis carried out was qualitative to describe public knowledge regarding the use of plant species as medicine with the support of scientific literature.

3 Result and Discussion

3.1 Informant Data

Table 1. Informant Data

No.	Name	Age	Occupation	Last Education
1	Niko Afrizal	36	Headman	Senior High School
2	Ita	50	Housewife	Junior High School
3	Ana	33	Housewife	Junior High School
4	Hartati	45	Housewife	Elementary School
5	Zulkifli	49	Farmer	Elementary School

The first informant was the Headman of Pemandang Village, Mr. Niko Afrizal. The questions asked were about information on the use of plants as medicine by the community. The next informant were 4 residents of Pemandang Village, Mrs. Ita, Mrs. Ana, Mrs. Hartati, and Mr. Zulkifli. Questions asked about the species of medicinal plants used by the community, the parts of the plants used as medicine, how to use them, their uses, and where they are cultivated. These informants are considered to represent people who have knowledge about the use of plants as traditional medicine. In traditional community life, if someone has knowledge, in this case especially traditional knowledge, then the person will gain more social recognition. This factor is also one of the reasons why the knowledge of traditional medicines is kept confidential and only be informed from generation to generation and it is difficult to get it free [7].

3.2 Species of Medicinal Plants

Table 2. Species of Medicinal Plants

No.	Plant Species		Parts of the Plants Used as Medicine
	Common Name	Latin Name	
1	Sirih	<i>Piper betle</i>	Leaf
2	Katuk	<i>Sauropus androgynous</i>	Leaf
3	Kembang Sepatu	<i>Hibiscus rosa-sinensis</i>	Leaf
4	Pepaya	<i>Carica papaya</i>	Leaf
5	Jambu Biji	<i>Psidium guajava</i>	Leaf
6	Langsat	<i>Lansium domesticum</i>	Bark
7	Gelombang	<i>Cassia quaderialata</i>	Leaf
8	Pulai	<i>Alstonia scholaris</i>	Leaf
9	Salam	<i>Syzygium polyathum</i>	Leaf
10	Ciplukan	<i>Physalis angulata</i>	Leaf
11	Pandan	<i>Pandanus amaryllifolius</i>	Leaf
12	Pisang	<i>Musa paradisiaca</i>	Leaf
13	Benalu	<i>Loranthus sp.</i>	Leaf
14	Senduduk	<i>Melastoma malabatricum</i>	Leaf
15	Jeruk bali	<i>Citrus maxima</i>	Leaf
16	Cocor bebek	<i>Bryophyllum pinnatum</i>	Leaf
17	Serai	<i>Cymbopogon sp.</i>	Leaf
18	Nangka	<i>Artocarpus integra</i>	Leaf

From the table above, it is known that there are 18 plant species used as medicine by the people of Pemandang Village, Rokan IV Koto District, Rokan Hulu Regency, which are *Piper betle*, *Sauropus androgynous*, *Hibiscus rosa-sinensis*, *Carica papaya*, *Psidium guajava*, *Lansium domesticum*, *Cassia quaderialata*, *Alstonia scholaris*, *Syzygium polyathum*, *Physalis angulata*, *Pandanus amaryllifolius*, *Musa paradisiaca*, *Loranthus* sp., *Melastoma malabatricum*, *Citrus maxima*, *Bryophyllum pinnatum*, *Cymbopogon* sp., *Artocarpus integra*. Among the 18 plant species, 17 types of which the part of the plant used as medicine is the leaves, while 1 plant species, which is *langsat*, the part used as medicine is the bark. The leaves are the most important part easy to pick up and find at any time required, differs in parts other common medicinal plants depending on the season for example flowers and fruits [8].

3.3 How to use and the uses of the Medicine Plants

Table 3. How to use and the uses of the Medicine Plants

No	Species	How to Use	The Uses
1	<i>Piper betle</i>	Squeeze the leaves until it shriveled then rub it on the part affected by the allergy	Medicine for allergy
2	<i>Sauropus androgynous</i>	The leaves are usually crushed using a grinder and then place the leaves on the stomach	Medicine for fever
3	<i>Hibiscus rosa-sinensis</i>	Crumple the leaves and then place them on the head	Medicine for fever
4	<i>Carica papaya</i>	Squeeze the papaya leaves using water, then strain, and drink the water	Medicine for stomachache
5	<i>Psidium guajava</i>	Boil the leaves with water and then drink it	Medicine for stomachache, constipation, and dysentery
6	<i>Lansium domesticum</i>	Scrape the bark, knead it with water, then filter it, and then drink the water	Medicine for fever
7	<i>Cassia quaderialata</i>	The leaves are crushed and then rubbed on the itchy parts of the body	Medicine for itching, ringworm, and tinea versicolor
8	<i>Alstonia scholaris</i>	Boil the leaves with water and then bathe the baby, especially on the baby's head	Medicine for removing black spot on the baby's head
9	<i>Syzygium polyathum</i>	Boil the leaves with water and then drink it	Medicine for hypertension
10	<i>Physalis angulata</i>	Burn the leaves, then add the oil. Mix them and then apply it to the affected area	Medicine for small bumps on the skin
11	<i>Pandanus amaryllifolius</i>	Slice pandan leaves then put them in warm water and drink it	Medicine for diabetes and hypertension
12	<i>Musa paradisiaca</i>	Heat the banana leaves with fire, let the leaves shriveled, then hold the leaves while they are still warm	Medicine for convulsions

13	<i>Loranthus</i> sp.	Boil the leaves and then use the water as bath water	Medicine for jaundice
14	<i>Melastoma malabatricum</i>	Squeeze the leaves then strain, and drink the water	Medicine for stomachache
15	<i>Citrus maxima</i>	Squeeze the young leaves and drink the water	Medicine for stomachache
16	<i>Bryophyllum pinnatum</i>	Chop the leaves then stick them on the stomach	Medicine for stomachache
17	<i>Cymbopogon</i> sp.	Boil the lemongrass leaves then strain them, separating the water from the oil	Massage oil
18	<i>Artocarpus integra</i>	Rub the leaves on the area affected by measles	Medicine for measles

From the table above, it is known that there are various ways of using plants as medicine by the people of Pemandang Village. 11 plant species (*Piper betle*, *Sauropus androgynous*, *Hibiscus rosa-sinensis*, *Cassia quaderialata*, *Alstonia scholaris*, *Physalis angulata*, *Musa paradisiaca*, *Loranthus* sp., *Bryophyllum pinnatum*, *Cymbopogon* sp., *Artocarpus integra*) are used for external body treatment by rubbing it to the sick area, sticking it to the sick area, washing the sick area with plant boiled water, and applying it to the sick area. 7 other plant species (*Carica papaya*, *Psidium guajava*, *Lansium domesticum*, *Syzygium polyathum*, *Pandanus amaryllifolius*, *Melastoma malabatricum*, *Citrus maxima*) are used for internal body treatment by drinking the plant boiled water. In general, these plants are made into medicinal concoctions by kneading, pounding (squeezing), boiling, and burning. The processing and the use of medicinal plant is done by simple way. It is related to public knowledge about medicinal plants in general acquired from generation to generation and based on habits as well their daily experiences [9].

In general, these plants are used as medicines to reduce fever (*Sauropus androgynous*, *Hibiscus rosa-sinensis*, *Lansium domesticum*) and medicine for stomachache (*Carica papaya*, *Psidium guajava*, *Melastoma malabatricum*, *Citrus maxima*, *Bryophyllum pinnatum*). *Psidium guajava* leaves and coconut fiber have an astringent taste and contain tannins and essential oils which can relieve stomach pain [10]. Other plant species are used for allergy medicine (*Piper betle*); medicine for itching, ringworm and tinea versicolor (*Cassia quaderialata*); medicine for removing black spots on the baby's head (*Alstonia scholaris*); medicine for small bumps on the skin (*Physalis angulata*); medicine for convulsions (*Musa paradisiaca*); medicine for jaundice (*Loranthus* sp.); massage oil (*Cymbopogon* sp.); and medicine for measles (*Artocarpus integra*).

The people of Pemandang Village use *Syzygium polyathum* and *Pandanus amaryllifolius* as medicine to lower blood pressure. Compounds that can help reduce high blood pressure are flavonoid compounds. Flavonoids are useful for improving blood circulation throughout the body, preventing blockages in blood vessels, reducing cholesterol content and reducing the growth of fat on blood vessel walls and reducing the risk of coronary heart disease. This flavonoid compound is found in avocado leaves, teak, Japanese pumpkin, manggu, mimosa root, takokak, and *Syzygium polyathum*, so that these medicinal plants can be efficacious in lowering blood pressure [11] [12].

3.4 Cultivation Method

Table 4. Cultivation Method

No	Plant Name	Cultivation Place
1	<i>Piper betle</i>	Planted in the yard
2	<i>Sauropus androgynous</i>	Growing wild in the forest
3	<i>Hibiscus rosa-sinensis</i>	Planted in the yard
4	<i>Carica papaya</i>	Planted in the yard
5	<i>Psidium guajava</i>	Planted in the yard
6	<i>Lansium domesticum</i>	Planted in the yard
7	<i>Cassia quaderialata</i>	Growing wild in the riparian area
8	<i>Alstonia scholaris</i>	Growing wild in the forest
9	<i>Syzygium polyathum</i>	Planted in the yard, growing wild in the forest
10	<i>Physalis angulata</i>	Planted in the yard
11	<i>Pandanus amaryllifolius</i>	Planted in the yard
12	<i>Musa paradisiaca</i>	Planted in the yard
13	<i>Loranthus sp.</i>	Growing wild
14	<i>Melastoma malabatricum</i>	Growing wild in the forest
15	<i>Citrus maxima</i>	Planted in the yard
16	<i>Bryophyllum pinnatum</i>	Planted in the yard
17	<i>Cymbopogon sp.</i>	Planted in the yard
18	<i>Artocarpus integra</i>	Planted in the yard

Cultivation method of plants used as medicine is carried out in the yard of the house. For several species of plants that grow wild in the forest, such as *Sauropus androgynous*, *Alstonia scholaris*, and *Melastoma malabatricum*. For this reason, it is very important to preserve forests so that plant species that are of value to society can be preserved. The use of medicinal plants by local people brings very few negative impact on forest sustainability. Instead, this is closely related to conservation of natural resources, especially plants that can be used as medicine based on life experiences. So by knowing the benefits of medicinal plants from traditional processing, then the steps of conservation can be done in an integrated manner.

4 Conclusion

Based on research data, it is known that there are 18 plant species that are used as medicine by the community in Pemandang Village, Rokan IV Koto District, Rokan Hulu Regency, which are *Piper betle*, *Sauropus androgynous*, *Hibiscus rosa-sinensis*, *Carica papaya*, *Psidium guajava*, *Lansium domesticum*, *Cassia quaderialata*, *Alstonia scholaris*, *Syzygium polyathum*, *Physalis angulata*, *Pandanus amaryllifolius*, *Musa paradisiaca*, *Loranthus sp.*, *Melastoma malabatricum*, *Citrus maxima*, *Bryophyllum pinnatum*, *Cymbopogon sp.*, *Artocarpus integra*.

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