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Ethnobotanical Study of Medicinal Plants by Lembak Ethnic Bengkulu as a Source of Learning Biology

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***Abstract*—This research aimed to study diseases can be healing by Lembak Ethnic and to document potential plant for diseases healing. Medical Plants has been determinate. 62 species medical plants documented are used by local people as alternative medicine. The diseases that can be treated include: kidney, cancer, malaria, diarrhea, cough, skin, stomach ache, eyes, and digestion. The results of the study can be used as learning resources in the form of practical instructions.**

Keywords—ethnobotanical; traditional medicine; medicinal plant; ethnic Bengkulu; learning resources

I. INTRODUCTION

Ethnobotany study is the study of the relationship between humans and plants. One of the relationships between humans and plants is in terms of how humans use plants to fulfill their life needs such as clothing, food, shelter, and medicines. Utilization of plants as medicine has actually been done for a long time, but most of the use of these plants has not been well documented or even recorded at all, so that information on the use of plants as drugs can disappear from generation to generation and the use of plants as medicine will not develop as should be [1-3]. For example, many people or students do not know about the use of medicinal plants around them, because the information they do not get orally or there is no written document that can be learned.

Documentation of the results of the ethnobotany study in the form of documents on the diversity of medicinal plants used in traditional medicine has begun to be carried out on indigenous tribes in Bengkulu Province. The Province of Bengkulu is quite rich with the original tribes namely the Kaur, Pekal, Pasemah, Rejang, Serawai, Enggano, Muko-muko and Lembak tribes [4]. They live in different ecosystem areas so that they have the potential to gain different knowledge about their wisdom in utilizing biological medicinal plant resources in traditional medicine. The results obtained from differences in ethnicity and location were also differences in the diversity of plant benefits used in traditional medicine [3,5]. This becomes very interesting to explore the documentation of medicinal plants in traditional medicine, because as we know the relatively high price of chemical drugs and the deterioration of economic conditions in Indonesia, resulting in the transition of some traditional medicine communities. So that ethnobotany studies are very important to help people find alternative medicine.

Ethnobotany studies of plants on ethnic in Indonesia are still lacking, this can be seen in the new ethnophytomedical dictionary documenting data on diseases and medicinal plants as many as 45 ethnic groups, approximately 12% of all ethnic groups in Indonesia. The ethnicity in Bengkulu Province is only documented as Rejang ethnic, while for the other ethnic groups there is no ethnic group including the Lembak ethnic. [6]. The Lembak ethnic is one of the largest ethnic in Bengkulu from the past to know and develop the use of medicinal plants in traditional medicine, but research on this subject is still small, so it needs to be documented [5,7]. This study aims to determine the types of plants that are traditionally used to cure diseases.

Documentation of these medicinal plants is not only useful for the needs of the community, but also useful for the world of education, namely as a source of biology learning for students and students. Learning is a process of interaction between students and educators and learning resources in a learning environment. Indonesia's young generation needs to be prepared to be critical, creative and have an awareness of the importance of preserving environmental functions for the needs of their generation and future generations in managing living natural resources through education. Education is an effort to prepare students to have high quality intellectual, emotional, spiritual and social abilities [8,9]. Therefore it is important to do research on "Ethnobotany Study of Medicinal Plants by the Lembak Ethnic as a Learning Resource".

II. METHOD

The study was conducted on Lembak ethnic groups in the villages of Kembang Seri, Tanjung Gemilang, Talang Empat, Tanjung Terdana, North Bengkulu and Kota Bengkulu in April - June 2018. The study was conducted by observation and interviews with 'Bahtra "and the community selected as samples. The community selected as a sample was done by purposive sampling, which is to the people who have knowledge about the use of medicinal plants. The interview was conducted to obtain information about the names of the types of plants used as drugs, and the uses of these plants in curing diseases [1]. After the interview was carried out a

collection of medicinal plants, making herbariums and determination to obtain scientific names. Determination by using reference books such as: Flora for schools, Taxonomy Plant.

III. Result and Discussion

The types of medicinal plants used in traditional medicine in research locations involving 6 informants were found 62 species (Table 1), which consisted of cultivated or wild-growing species. The organs used vary in treatment, namely in the form of roots, the bark, leaves, fruit, seeds or whole skin from plant organs. The leaf organ is most widely used in medicine. From the results of ethnobotany research on medicinal plants that have been carried out before, leaf organs are also more dominant [3,5,7]. The method of processing is done by taping, drinking boiled water, slapping, compressing, grouting, kneading, pounding, crushing, making vegetables.

Various plants can cure various diseases and vice versa. Malaria is one of the diseases that is endemic in Bengkulu can be treated with 5 species of medicinal plants, namely Sambiloto (Andrographis paniculata), Bunga raya (Hibiscus rosa sinensis), Tongkat ali / pasak bumi (Eurycoma longifolia), Sungkai (Peronema cenescens), Simpur (Dillenia indica), while previous researchers in the Lembak ethnic got to treat malaria there were two species of plants, Sungkai and Sirsak (Annona muricata) [10]. Plants that can treat malaria are included in the antimicrobial plant group, because it is caused by the microorganism Plasmodium falciparum, P. vivax, P. malariae, P. ovale. P. bergey.

When compared to the other ethnics, Soursop (Annona muricata), Mukomuko ethnic is also useful for treating malaria, besides, Mukomuko ethnic also uses green coconut (Cocos nucifera), Coconut is also used by the Serawai ethnic [11]. Other plants used to treat malaria in the Mukomuko and Serawai ethnic are: Papaya (Carica Papaya), Gambas / katulo (Luffa acutangula), sidukung anak / Konak (Phyllanthus niruri), Brotowali (Tinospora crispa), Tongkat ali / pasak bumi (Eurycoma longifolia) also used to treat malaria. From the results obtained, other ethnic different types of plants are used for a disease, this illustrates how important it is to extract knowledge about the use of plants in various ethnics for further development.

Soursop plants are very easy to obtain in our environment, so it is very supportive as a learning resource. These plants include the family Annonaceae, Order Ranales (Polycarpales) with special characteristics of the order cannot be distinguished between the calyx (calyx) and flower crown (corolla) [12]. Soursop contains active compounds in the form of flavonoids, polyphenols, alkaloids, with morphological characteristics as follows : Tree habitus, taproot, woody stem, round shape grows upright. Single leaf, elongated lanceolate or inverted oval shape, tapered tip, base boasting, flat edge. Compound interest, bad smell yellowish green. Green compound, flat seeds, black. In the concept of phylogeny classification the Bessey classification system, this group of plants in the phylogeny system is classified as primitive, characterized by polypetal flower plants, many flower ornaments, not attached, each number equal and arranged in a spiral [13].

Coconut is also easily found around us, so it is very supportive as well as a source of learning. For ethnic Serawai this plant is used to neutralize poisons. Coconut water contains tanin coconut meat contains terpenoids, alkaloids, glycosides, resins and steroids [14,15]. Coconut, including the family Arecaceae, which has a characteristic that is easily recognizable, namely panic compound flowers wrapped in hard and large petals (spathaceous bract). In addition to neutralizing poisons and malaria, coconuts are also used to treat smallpox and diarrhea by ethnic Serawai and Mukomuko [11]. The results of subsequent plant studies that can be used as learning resources can be seen in Table 1.

The results of the research in the form of knowledge of traditional medicinal plants that will be used as learning resources must be integrated in the curriculum, this is very important so that students respect cultural values and do not leave their cultural roots [16]. Local wisdom-based learning can improve the ability of science processes and foster a positive paradigm for students [17].

TABLE I. Types of Medicinal Plants Used in Medicine and Others

No	Medicinal herbs	Useful
1	Sambiloto (*Andrographis paniculata*)	Malaria, diarrhea
2	Rosella (*Hibiscus sabdarifa*)	Lowers high blood pressure
3	Kayu urip/ patah tulang (*Euphorbia tirucalii*)	Rheumatism
4	Bunga raya (*Hibiscus rosa sinensis*)	Flu, malaria, cough, canker sores, reduce body heat, headaches
5	Belimbing wuluh (*Averrhoa bilimbi*)	Cancer
6	Bawang dayak (*Eleutherine bulbosa*)	Cancer
7	Tebu hitam (*Saccharum officinarum*)	Maintaining healthy heart and kidneys, inflammation
8	Kemangi (*Ocimum xcitrodorum*)	Body odor
9	Pepaya / kates lanang (*Carica papaya*),	Smooth digestion, high fever, complete maternity, constipation
10	Tongkat ali (*Eurycoma longifolia*)	Malaria, blood circulation,
11	Kumis kucing (*Orthosiphon stamineus*)	Kidney stones, lumbago, joints, rheumatism, facilitating urination
12	Sedingin (*Kalanchoe pinnata*)	Boils, hot bodies, shortness of breath, ‘a condition in building a house
13	Selasih (*Ocimum sanctum*)	Deep, warm, nauseous, measles
14	Srikaya (*Annona squamosa*)	Lumbago, reduce high blood pressure,
15	Jambu biji (*Psidium guajava*)	Fever, lowers high blood pressure, diarrhea
16	Mengkudu (*Morinda citrifolia*)	Joint pain, magh, malaria, tumors, kidney stones, pimples, down stomach, stomach ache
17	Sirih (*Piper betle*)	"Kesapo", cleaning wounds after childbirth, bruises, ears, nosebleeds, hives, "traditional ceremonies", smooth menstruation, eyes.
18	Ketepeng cina (*Cassia alata*)	Panu, canker sores, worms

Table 1. Cont.

No	Medicinal herbs	Useful
19	Jarak pagar (*Jatropha curcas*)	Flatulence, canker sores, diarrhea, vomiting
20	Puding merah (*Codiaceum variagatum*)	Finished giving birth, ambiguity, boils, cuts and bruises, inflammation, swollen organs
22	Sungkai (*Peronema cenescens*)	High fever, malaria, headache
23	Marapuyan (*Rhodaminiacinerea*)	Itchy
24	Setaro (*Costus speciousus*)	Stomach ache. "Splash when marriage bride"
25	Labu putih/kondo (*Benincasa hispida*)	Fever, abdominal pain, "condition for upright home
26	Jeruk nipis (*Citrus aurantifolia*)	Cough, strengthen pregnancy
27	Bunga lawang/pekak putih (*Illicium verum*)	Abdominal pain, indigestion, back pain
28	Pinang (*Areca catechu*)	Earache, "kesapo", worm medicine
29	Kunyit putih (*Curcuma mangga*)	Leukemia
30	Sembung / cape/capo (*Blumea balsamifera*)	Flu, abdominal pain and menstrual pain
31	Kembang payung /daun payung (-	Sprain
32	Alpokat (*Persea americana*)	High blood pressure
33	Pucuk ubi (*Manihot utilissima*)	Wounds and scars
34	Kembang merak (*Caesalpinia pulcherrima*)	Bruises
35	Kunyit (*Curcuma domestica*)	Stomach ache,
36	Bangle (*Curcuma longa*)	Bad antidote
37	Kencur (*Kaempferia galanga*)	Colds
38	Kayu singgah/ benalu (*Scurrula sp*)	Cancer
39	Buah sawo (*Achras zaphota*)	Diarrhea
40	Simpur (*Dillenia indica*)	Stomach down, malaria medicine
41	Tempuyung (*Sonchus oleraceus*)	Tooth ache
42	Seletup/ciplukan (*Physalis angulata*)	Asthma, ringworm, fever, high blood pressure
43	Petai cina (*Leucaema leucochepala*)	Pain in the body
44	Jeringau (*Acorus calamus*)	Medication for abdominal pain
45	Serai (*Cymbopogon citratur*)	Fungal infections, repel mosquitoes
47	Lengkuas (*Alphinia galanga*)	Fever
48	Kelapa (*Cocos nucifera*)	Neutralizing poisons
49	Jambu biji (*Psidium guajava*)	Diarrhea
50	Tebu hitam (*Saccharom officinarum*)	Poisoning
51	Pacing/ sethago (*Costus speciosus*)	Scar
52	Sirih merah (*Piper crocatum*)	Sore
53	Jahe (*Zingiber officinale*)	Rheumatism
54	Alang-alang (*Imperata cylindrica*)	Deep heat
55	Kapuk (*Ceiba petandra*)	Hair fertility
56	Jambu keling (*Syzingium cumini*)	Heartburn
57	Kembang tunjung (*Perennis daisies*)	Diabetes
58	Pisang mas (*Musa acuminata*)	Missing scars
59	Keladi (*Colocasia esculanta*)	Wounds
60	Kopi (*Coffea* sp)	Wounds
61	Lidah buaya (*Aloe vera*)	Hair fertility
62	Sedingin (*Bryopyllum pinnatum*)	Cough medicine

IV. CONCLUSION

The results of the study found 62 types of medicinal plants that can be used for various types of diseases and used as learning resources. Some types of plants have the same benefits and conversely one type of plant has various benefits as well.

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