



## Comparative Study of Ethnomedicine Approach in Kutai Tribe at Loa Lepu Village and Muara Gusik Village, East Kalimantan, Indonesia

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### ABSTRACT

The villages of Loa Lepu and Muara Gusik are in East Kalimantan with different districts. The Kutai tribe in the two villages still use plants as medicine to treat various diseases. The existence of traditional elders in the two villages has an influence in traditional medicine. These different locations also have indications of differences in the utilization of medicinal plant species. This study aims to analyze the types of medicinal plants, as well as the processing and utilization of medicinal plants in the Kutai tribe in Loa Lepu Village and Muara Gusik Village. This type of research is participant observation research and qualitative and quantitative methods as well as purposive sampling and snowball techniques on 15 informants in the village of Loa Lepu and 15 informants in the village of Muara Gusik. The results showed that there were 70 medicinal plants which were divided into 39 families and spread to the Kutai tribe in Loa Lepu Village with 47 species and in the Kutai tribe in Muara Gusik Village as many as 41 species. The most widely used family in the two villages is Zingiberaceae. The highest use of leaves (32% of Loa Lepu Village and 23% of Muara Gusik Village), processing method is boiled (36% of Loa Lepu Village and 22% of Muara Gusik Village). It is this plant characterization that has the potential to be further investigated from the bioactivity found in the two villages.

**Keywords:** Ethnomedicine, Medicinal Plant, Kutai Tribe, Loa Lepu, Muara Gusik

### Introduction

Indonesia is a country rich in cultural heritage and traditional knowledge. Traditional knowledge refers to local knowledge and local communities within a society. Over the years, knowledge passed down from generation to generation in the form of local knowledge has developed in the local community of community.<sup>1</sup> Local wisdom is also developed and adapted to the environment and culture of the village community and passed down from generation to generation. Local wisdom is very valuable and must be preserved because cultural heritage is intangible and easily lost.<sup>2</sup> One of the local wisdoms that are part of the cultural heritage of the archipelago is the use of plants that are efficacious in curing disease or just for health.<sup>3</sup> Utilization of medicinal plants is one way to find new drugs, for example, traditional medicine is often the forerunner of the birth of new medicines.<sup>4</sup> Ethnomedicine is a part of pharmacy that includes understanding the medicinal plants used and studying how certain ethnic communities or societies use medicines. The scope of ethnomedicine is the medicinal plants used and how to use them.<sup>5</sup> One of the communities that still utilize plant biodiversity for traditional medicine is the Kutai tribe, who live in Muara Gusik village and Loa Lepu village. Muara Gusik Village is one of the villages located on Jalan Bongan. Bongan is a road in West Kutai Regency, East Kalimantan. Meanwhile, Loa Lepu Village is one of 18 villages located in Tenggarong Seberang District, Kutai Kartanegara Kingdom, East Kalimantan Province.

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Documentation and stock of medicinal plants in Muara Gusik and Loa Lepu villages are very important considering the times and innovation, as well as the growing level of state-funded education, making younger people look down on ancient culture.<sup>6</sup> This has an impact on the reduced public awareness of the use of different plants. Ancestral information about the use of plants is only limited to verbal information so people in the future do not know much about the benefits of plants.<sup>7</sup> Environmental knowledge in the local area is expected to fade as plant varieties decrease quickly.<sup>8,9</sup> Therefore, this research is expected to be able to introduce the use of different plants in Muara Gusik and Loa Lepu villages and see what their effects are on ecological security. The motivation of this research is to reveal information about the use of plants by the Kutai Tribe in Muara Gusik village and Loa Lepu village.

### Material and Methods

Data collection methods used in this study were semi-structured interviews and plant identification with the determination of respondents using the snowball method and purposive sampling, starting from the village head, then the customary head would recommend the names of 30 respondents. Each respondent was asked to provide information about medicinal plants and processing methods used by the people of Loa Lepu Village and Muara Gusik Village. This research was conducted from January to February 2022 in the Kutai tribe in Loa Lepu Village, Tenggarong Seberang District, Kutai Kartanegara Regency. and in Muara Gusik Village, Bongan District, West Kutai Regency. The work procedure starts from research preparation to data or results from analysis which includes the following steps:

#### Preliminary Study

At this stage, a preliminary study was conducted, which included an introduction to the research area, approaches to residents of the research area by asking residents or elders who understand medicinal plants, as well as initial observations of informants about their knowledge of their

use. Traditional medicine and the willingness of informants to become resource persons.

#### Preparation of Research Tools and Materials

The instruments used were interview guides (questionnaires), documentation tools (digital cameras and recording devices) and writing instruments. The materials used are all types of plants used as traditional medicines originating from Loa Lepu Village and Muara Gusik Village.

#### Conducting Interviews with Respondents

Interviews were conducted by interviewing informants who were identified based on initial observations. Interviews were conducted in a semi-structured manner using open-ended questions. Interviews with informants were conducted with open-ended questions, supported by recording devices, and questionnaires filled out by researchers. Open-ended questions describe the options available to respondents to provide answers. Respondents provide answers or responses that are free and open.

#### Observation

The observation method used is unstructured observation. Unstructured observations are observations that are not systematically arranged for what will be observed, only in the form of observations. The observation method was carried out by direct observation and recording or systematic data collection of medicinal plants used by the people of Loa Lepu Village and Muara Gusik Village.

#### Documentation and Data Collection

Collecting data in the form of photos of plant species obtained from the results of structured interviews. Documentation of plants belonging to the group of trees and shrubs can be taken on the part of the plant used as traditional medicine or taken documentation at the place where it grows. Data collection was obtained through semi-structured interviews with informants who used plants as traditional medicine.

## Result and Discussion

All respondents from Loa Lepu village are female, while from Muara Gusik village, female respondents were 46% and male 53% (Table 1.). Respondents from Loa Lepu village who are in the 31-50 years age group are 66%, and the 51-70 years age group are 33%. Meanwhile, 60% of the village of Muara Gusik is in the 31-50 years age group and 40% in the 51-70 years age group. From these two villages, all respondents are adherents of the Islamic religion, and most of the

respondents only studied up to elementary school (elementary school). In addition, most of the respondents from these two villages work as farmers, so it is possible to know about the use of plants as medicine. All respondents know traditional medicine based on generations from their ancestors or family heritage

Overall, there are 70 species of medicinal plants used by the Kutai tribe in the Muara Gusik and Loa Lepu villages (Table 2). However, if viewed from the distribution, it can be seen that Loa Lepu Village uses 47 types of medicinal plants, while Muara Gusik Village uses 41 types of medicinal plants. The Kutai tribe in Loa Lepu village uses medicinal plants in greater numbers when compared to the Kutai tribe in Muara Gusik Village. This difference is because the Kutai tribe in Loa Lepu village provides information based on the plants they cultivate, since 2018 the Kutai tribe in Loa Lepu village is required to plant or cultivate medicinal plants in every yard of the house, besides that there are not many people in Loa Village. lions who exchange information about medicinal plants, so that a lot of information about these medicinal plants is obtained.<sup>10</sup> This is different from the information on medicinal plants obtained in the village of Muara Gusik, many people in the village of Muara Gusik provide the same information on medicinal plants.

There are 18 types of medicinal plants that are used together in the two Kutai tribes in Loa Lepu Village and Muara Gusik Village, namely *Cymbopogon nardus* L., *Zingiber officinale*, *Curcuma domestica*, *Peperomia pellucid* L., *Syzygium polyanthum*, *Psidium guajava* L., *Muntingia calabura* L., *Orthosiphon aristatus*, *Sauropus androgynus* L., *Annona muricata* L., *Euphorbia tirucalli*, *Anredera cordifolia*, *Solanum torvum*, *Hibiscus rosa sinensis* L., *Apium graviolens* L., *Physalis angulata*, *Ziziphus mauritiana* and *Pandanus amaryllifolius*. The similarity in knowledge of medicinal plants owned by the two villages shows that there is a distribution of some knowledge between them, presumably because this knowledge has become general knowledge in the community.<sup>11</sup> The types that have the above similarities are plants that are well known to the public because they are used in everyday life as kitchen spices such as lemongrass, turmeric, ginger, and bay leaves.<sup>12</sup>

Other plant species such as *Centela asiatica* L., *Eleutherine bulbosa*, *Piper anducum*, *Cyperus rotundus*, *Bambusoideae*, *Areca catechu*, *Imperata cylindrica*, *Ocimum sanctum* L., *Pluchea indica* L., *Phyllanthus niruri* L., *Asplenium scolopendrium*, *Ficus auriculata*, *Cayratia trifolia*, *Ageratum*, *Blumea balsamifera*, *Bryophyllum pinnatum*, *Graptophyllum*, *Ocimum basilicum*, *Eurycoma longifolia*, *Coriandrum sativum*, *Tinospora cordifolia*, *Chromolaena odorata* L., *Jatropha curcas* L.

**Table 1:** Characterization of respondents who know about traditional medicine (n=15)

Parameter		Loa Lepu Villages		Muara Gusik Villages	
		Total	(%)	Total	(%)
Gender	Woman	15	100	7	46
	Man	-	-	8	53
Age (years)	31 – 50	10	66	9	60
	51 – 70	5	33	6	40
Religion (Islam)		15	100	15	100
Job	Farmer	8	53	14	93
	Salesman	1	6	-	-
	Teacher	1	6	1	6
	Midwife	5	33	-	-
Education	Primary school	5	33	10	66
	Junior high school	4	26	3	20
	Senior High School	4	26	1	6
	Undergraduate	2	13	1	6
Traditional knowledge about traditional medicine		15	100	15	100

**Table 2:** Types of medicinal plants used by the Kutai tribe in Muara Gusik village, Bongan sub-district, West Kutai regency and in Loa Lepu village, Tenggarong Sebrang district, Kutai Kartanegara district

No	Local name(Species) Family	Application	Part of plants	Processing Methods	Village	
					Loa Lepu	Muara Gusik
1.	Jelukap ( <i>Centela asiatica</i> L.) Apiaceae	Coughs, Colds	Leaves	Boiled	√	-
2.	Serai ( <i>Cymbopogon nardus</i> L.) Poaceae	Cholesterol, Uric acid	Stem	Boiled	√	√
3.	Pemedas ( <i>Zingiber officinale</i> ) Zingiberaceae	Coughs, Endurance	Rhizome	Boiled	√	√
4.	Kunyit ( <i>Curcuma domestica</i> ) Zingiberaceae	Endurance, Joint pain	Rhizome	Boiled	√	√
5.	Putri Malu ( <i>Mimosa pudica</i> ) Fabaceae	Diabetes	Leaves	Boiled	√	-
6.	Lengkuas ( <i>Alpinia galangal</i> L.) Zingiberaceae	Immunostimulants	Rhizome	Boiled	√	-
7.	Pacar Cina( <i>Peperomia pellucida</i> ) Piperaceae	Uric acid, Inflammation	Leaves	Pounded,Boiled	√	√
8.	Daon salam ( <i>Syzygium polyanthum</i> ) Myrtaceae	Cholesterol,Hypertension	Leaves	Boiled	√	√
9.	Cekor ( <i>Kaempferia galangal</i> L.) Zingiberaceae	Cough	Rhizome	Boiled	√	-
10.	Lidah buaya ( <i>Aloe vera</i> L.) Xanthorrhoeaceae	Burns	Leaves	Smeared	√	-
11.	Jambu batu ( <i>Psidium guajava</i> L.) Myrtaceae	Diarrhea	Leaves	Pounded,Boiled	√	√
12.	Ceri ( <i>Muntingia calabura</i> ) Muntingiaceae	Diabetes	Leaves	Boiled	√	√
13.	Kelor ( <i>Moringa oleifera</i> ) Moringaceae	Anemia	Leaves	Boiled	√	-
14.	Mengkudu ( <i>Morinda citrifolia</i> L.) Rubiaceae	Hypertention	Fruits	Boiled	√	-
15.	Kumis koceng ( <i>Orthosiphon aristatus</i> ) Lamiaceae	Kidney	Leaves	Boiled	√	√
16.	Bawang Dayak ( <i>Eleutherine bulbosa</i> ) Iridaceae	Cancer and Cholesterol	Tubers	Boiled	√	-
17.	Katu ( <i>Sauropus androgynous</i> ) Phyllanthaceae	Lactation	Leaves	Boiled	√	√
18.	Nangka Belanda ( <i>Annona muricata</i> ) Annonaceae	Hypertention	Leaves	Boiled	√	√
19.	Sirih ( <i>Piper betle</i> L.) Piperaceae	Itch, Antiseptic	Leaves	Boiled	√	-
20.	Kembang melati ( <i>Jasminum</i> ) Oleaceae	Hypertention	Leaves	Boiled	-	√
21.	Daun Sirihan ( <i>Piper anducum</i> ) Piperaceae	Hemorrhoid	Leaves	Boiled	-	√
22.	Meniran ( <i>Phyllanthus niruri</i> L.) Euphorbiaceae	Diabetes	Leaves	Boiled	√	-
23.	Patah Tulang ( <i>Euphorbia tirucalli</i> ) Euphorbiaceae	Sprains	Leaves	Pounded	√	√
24.	Binahong ( <i>Anredera cordifolia</i> ) Basellaceae	inflammation	Leaves	Pounded	√	√
25.	Seret ( <i>Cyperus rotundus</i> ) Cyperaceae	Diabetic	Roots	Boiled	-	√
26.	Terung Pipit ( <i>Solanum torvum</i> ) Solanaceae	Eye vision	Fruit	Eat directly	√	√
27.	Pereng ( <i>Bambusoideae</i> ) Poaceae	Hypertension	Roots	Boiled	-	√
28.	Pinang ( <i>Areca catechu</i> ) Arecaceae	Hypertension	Roots	Boiled	-	√
29.	Niur ( <i>Cocos nucifera</i> ) Arecaceae	Fever, Hypertension	Roots	Boiled	-	√
30.	Lalang ( <i>Imperata cylindrica</i> ) Poaceae	Hypertension, Fever	Roots	Boiled	-	√
31.	Ruku-ruku ( <i>Ocimum sanctum</i> L.) Lamiaceae	Fever	Leaves	Pounded	√	-
32.	Luntas ( <i>Pluchea indica</i> L.) Asteraceae	Joint pain	Leaves	Boiled	√	-
33.	Pecah beling ( <i>Strobilanthea crispus</i> ) Acanthaceae	Kidney stone	Leaves	Boiled	√	-
34.	Belimbing tunjuk ( <i>Averrhoa bilimbi</i> L.) oxalidaceae	Hypertension	Leaves	Boiled	√	-
35.	Tengkapa ( <i>Asplenium scolopendrium</i> ) Aspleniaceae	Sciatica	Shoots	Boiled	-	√
36.	Lupun ( <i>Ficus auriculata</i> ) Moraceae	Hemorrhoid	Shoots	Boiled	-	√

37.	Kembang Sepatu ( <i>Hibiscus rosa-sinensis</i> ) Malvaceae	Fever	Leaves	Pounded	√	√
38.	Daun Wungu ( <i>Graptophyllum</i> ) Acanthaceae	Hemorrhoid	Leaves	Boiled	√	-
39.	Terung kumut ( <i>Passiflora foetida</i> ) Passifloraceae	Fever	Leaves	Boiled	-	√
40.	Lakum ( <i>Cayratia trifolia</i> ) Vitaceae	Colon disease	Fruits	Eat directly	-	√
41.	Kayu sepang ( <i>Caesalpinia sappan</i> ) Caesalpinaceae	Bleeding	Stems	Boiled	√	-
42.	Letup ( <i>Physalis peruviana</i> ) Solanaceae	Diabetic	Fruit	Boiled	√	√
43.	Daun surga ( <i>Bryophyllum pinnatum</i> ) Crassulaceae	Fever	Leaves	Pounded	√	-
44.	Telaseh ( <i>Ocimum basilicum</i> ) Lamiaceae	Fever	Leaves	Pounded	-	√
45.	Bengalun Kokang ( <i>Lepisanthes amoena</i> ) Sapindaceae	Scar	Leaves, Shoots	Pounded	-	√
46.	Gedang ( <i>Carica papaya</i> L.) Caricaceae	Cholesterol	Seed	Eat directly	√	-
47.	Pemedas Habang ( <i>Zingiber officinale</i> ) Zingiberaceae	Immunomodulator	Rhizome	Boiled	√	-
48.	Coklat ( <i>Theobroma cacao</i> ) Malvaceae	Hypertension	Leaves	Boiled	-	√
49.	Rumput Kalah Benua ( <i>Euphorbia hirta</i> ) Euphorbiaceae	Joint pain	Leaves	Pounded	-	√
50.	Daon Sop ( <i>Apium graveolens</i> ) Apiaceae	Cholesterol, Hypertension	Leaves	Boiled	√	√
51.	Pandan ( <i>Pandanus amaryllifolius</i> ) Pandanaceae	Hypertension	Leaves	Boiled	√	√
52.	Kembang Rosela ( <i>Hibiscus sabdariffa</i> ) Malvaceae	Diabetic	Flowers	Boiled	√	-
53.	Saoh ( <i>Manilkara zapota</i> L.) Sapotaceae	Diarrhea	Fruit	Boiled	√	-
54.	Tembora ( <i>Ageratum conyzoides</i> ) Asteraceae	Scar	Leaves	Pounded	-	√
55.	Kuyur ( <i>Dipterocarpus retusus</i> ) Dipterocarpaceae	Diarrhea	Roots	Boiled	-	√
56.	Sembong ( <i>Blumea balsamifera</i> ) Asteraceae	Diarrhea	Leaves	Boiled	√	-
57.	Sambiloto ( <i>Andrographis paniculata</i> ) Acanthaceae	Diabetic	Leaves	Boiled	√	-
58.	Marwasik ( <i>Cryptocarya massoia</i> ) Lauraceae	Cough, fever	Skin bark	Boiled	-	√
59.	Daun jarak ( <i>Jatropha curcas</i> L.) Euphorbiaceae	Back Pain	Leaves	Boiled	√	-
60.	Serunai ( <i>Chromolaena odorata</i> L.) Asteraceae	Scar	Leaves	Pounded	√	-
61.	Akar Kait ( <i>Spatholobus littoralis</i> ) Fabaceae	Cancer	Roots	Boiled	-	√
62.	Sungkai ( <i>Peronema canescens</i> Jack.) Verbenaceae	Diabetes	Leaves	Boiled	√	-
63.	Daun Klorofil ( <i>Vernonia amygdalina</i> ) Asteraceae	Scar, liver, hypertension	Leaves	Boiled	-	√
64.	Bidara ( <i>Ziziphus mauritiana</i> ) Rhamnaceae	Acne	Leaves	Pounded	√	√
65.	Akar Sampai ( <i>Tinospora cordifolia</i> ) Menispermaceae	Back pain, Malaria, Diabetes	Roots	Chopped	-	√
66.	Akar Kunyit ( <i>Fibraurea tinctora</i> ) Menispermaceae	Sciatica	Roots	Boiled	-	√
67.	Dandang gendis ( <i>Clinacanthus nutans</i> ) Acanthaceae	Diabetes	Leaves	Boiled	√	-
68.	Temulawak ( <i>Curcuma zanthorrhiza</i> )	Immunostimulants	Rhizome	Boiled	√	-

Zingiberaceae					
69.	Ketumbar ( <i>Coriandrum sativum</i> )	Immunostimulants	Leaves	Boiled or eat directly	√ -
Apiaceae					
70.	Pasak Bumi ( <i>Eurycoma longifolia</i> )	Back pain	Root and stem	Boiled	- √
Simaroubaceae					
TOTAL					47 41

Notes : √ = Use as traditional medicine  
- = Not used as traditional medicine

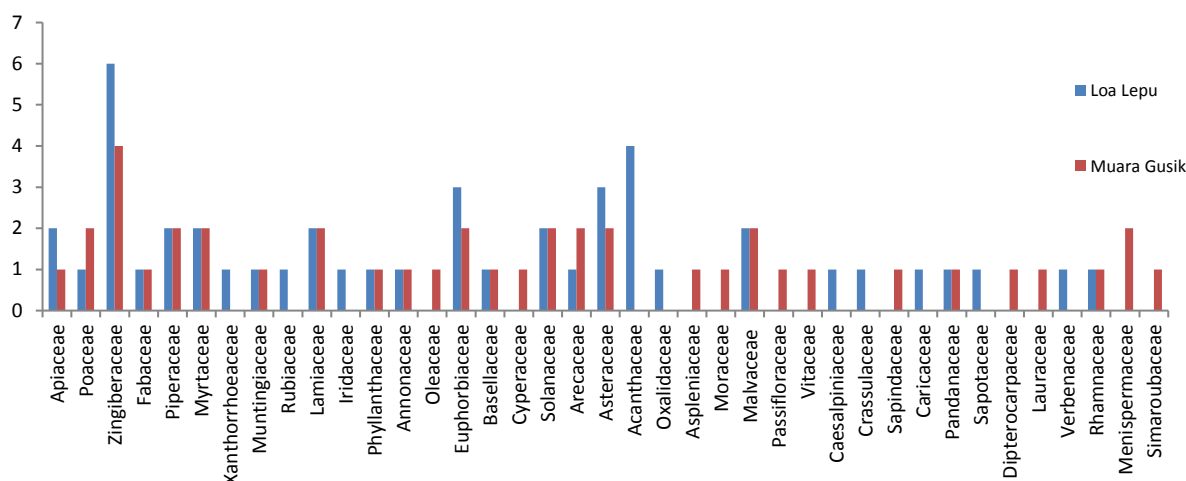


Figure 1: Comparison of family distribution of medicinal plant

The differences in the types of plants used above indicate differences in knowledge of medicinal plants, this is thought to be influenced by differences in local culture.<sup>13</sup>

The plant families used by the Kutai tribe in Loa Lepu Village and Muara Gusik Village are 39 families (Figure 1). When viewed from the distribution in the two villages, it appears that the highest family similarity is Zingiberaceae, which ranges from 4-6 plant species. Zingiberaceae family is a family that has many medicinal properties. Similar to the research conducted by Maharani *et al*<sup>14</sup> the family most widely used by Battra in Tembesuk village is the Zingiberaceae family. The Zingiberaceae family is widely used by people in Indonesia as food ingredients, spices, dyes, perfumes, beauty treatments and herbal medicines. This family is known to contain many medicinal compounds, such as phenols, flavonoids.<sup>15</sup>

The plant parts used by the Kutai tribe of Loa Lepu Village and Muara Gusik Village are leaves, stems, rhizomes, fruits, tubers, roots, shoots and seeds. The part of the plant mostly used by the two villages is the leaves (Figure 2). The high use of leaves parts in the processing of medicinal plants is very important and easy to obtain, widely spread in the surrounding environment.<sup>16</sup> According to the loa lepu village community, leaves are plant parts that are easy to find anywhere and do not cause significant damage to these plants.<sup>17</sup> In addition, the use of leaves has a rapid regeneration process, so that conservation does not have a major impact on the loss of plant sustainability in the forest.<sup>18</sup>

The processing of medicinal plants by the community in Loa Lepu Village and Muara Gusik Village was carried out in a simple way, such as by boiled, pounded, soaked, eating directly, smeared, grated and chopped (Figure 3). The same thing was reported by other researchers, such as.<sup>19</sup> The highest processing is by boiling, the processing is very effective for removing the active substances contained in these medicinal plants besides being effective, processing by boiling is very easy and simple to do. by the people of Loa Lepu Village and Muara Gusik Village.<sup>20</sup>

The UV method is a parameter used to determine the importance of a medicinal plant species used locally. The higher the UV value (close to 1 or more than 1), it can be seen that the species has the potential to be studied further. From two villages, namely Loa Lepu Village and Muara

Gusik Village. Types of plants that have a high use value or benefit from Loa Lepu Village are *Cymbopogon nardus* L. (1), *Zingiber officinale* (1), *Curcuma domestica* (1), *Syzygium polyanthum* (0.86), *Muntingia calabura* (0.93), *Annona muricata* L. (0.86) and *Apium graveolens* (0.93). Meanwhile, plants that have a high use value from Muara Gusik Village are *Cymbopogon nardus* L. (1), *Syzygium polyanthum* (1), *Annona muricata* L. (0.86), *Tinospora cordifolia* (0.9) and *Eurycoma longifolia* (1) (Table 3). Plants that have high use value in the two villages have species similarities are *Cymbopogon nardus* L., *Syzygium polyanthum* and *Annona muricata* L. Plants with high UV values above are known to contain several compounds that are known to function as treatments, such as the main compounds contained in *Cymbopogon nardus*, containing flavonoids and kaempferol.<sup>21</sup> *Syzygium polyanthum* contain volatile oil compounds (citric, euganol), flavonoids and tannins.<sup>22</sup> *Annona muricata* contains mono tetrahydrofuran acetogenin compounds, such as anomuricin A and B, gigante rosin A, annonacin10-one, muricacin A and B, annonacin, and goniotalamicin and potassium ions.<sup>23</sup> That compound was great for maintaining public health in the village of Loa Lepu and in the village of Muara Gusik, besides being easy to find, this medicinal plant has relatively small side effects when used properly compared to chemical drugs, making it the choice of the people of Loa Lepu Village and Muara Gusik Village to treat various diseases.

The ICF value is a value that shows the uniformity of information between respondents who are sampled in the study based on disease categories. It can be seen in (Table 4) that the highest ICF value in Loa Lepu village is in hypertension, cholesterol, cough, aches and pains, runny nose and fever.

Meanwhile, the highest ICF value in Loa Lepu village was in abdominal pain, itching, backache, malaria, gout, hemorrhoids, diabetes, urinary stones and hypertension. Where this means that the highest ICF value states that the informant's exchange information about the treatment of the disease, whereas if the ICF value is low (or close to zero) then the informants do not exchange information with other informants.<sup>24</sup> After obtaining the UV and ICF values, several plants with the highest UV and ICF values were selected to measure the Fidelity Level (FL) value to measure the percentage of respondents claiming the use of

certain species for the same purpose. Table 5 shows that in Loa Lepu village, there are 7 plants that have the highest UV and ICF values. The highest the FL value showed that the importance of the plant which people use for treatment.<sup>25</sup> *Cymbopogon nardus* has higher percentage of FL in both villages. *Zingiber officinale* and *Curcuma domestica* only showed in Loa Lepu village. Meanwhile, *Syzygium polyanthum* has higher fidelity level in Muara Gusik Village, rather than Loa Lepu village. The diversity of tribe cultures and the existence of several ethnic groups in one location can transmit knowledge of medicinal plants that lead to pharmacopoeial variations.<sup>26</sup> The elder knowledge and the interest of young people in the use of plants as medicinal ingredients is also a factor in the percentage of FL towards these particular plant species.

## Conclusion

There were 70 species (39 families) of plants used by the Kutai tribe as medicinal plants from Loa Lepu Village (47 species) and Muara Gusik Village (41 species). Between the two villages there are several species of the same plants was used as traditional medicine. The most widely used family in the village is Zingiberaceae. The method of processing by boiling and the leaves of plants as medicine has the highest value in the manufacture of traditional medicines. There are 7 species of medicinal plants that have high utility value from Loa Lepu village and 5 species from Muara Gusik village.

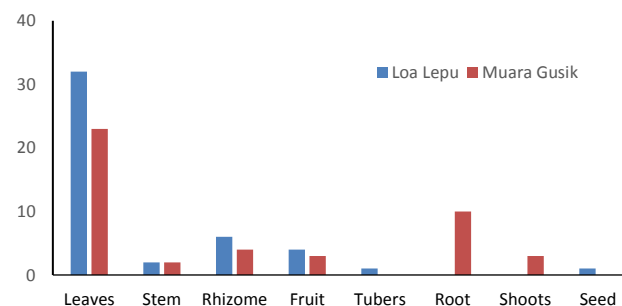


Figure 2: Parts of plants used as a medicinal treatment

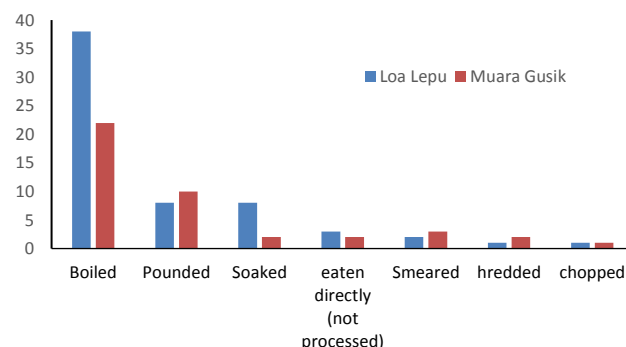


Figure 3: The comparison of medicinal plants preparation and administration in two different locations

Table 3: Use Value of Medicinal Plants from Loa Lepu dan Muara Gusik Village (n=15)

No	Local name (Species) Family	n		UV value	
		Loa Lepu	Muara Gusik	Loa Lepu	Muara Gusik
1.	Jelukap ( <i>Centela asiatica</i> L.) Apiaceae	3	-	0.2	-
2.	Serai ( <i>Cymbopogon nardus</i> L.) Poaceae	15	15	1	1
3.	Pemedas ( <i>Zingiber officinale</i> ) Zingiberaceae	15	6	1	0.4
4.	Kunyit ( <i>Curcuma domestica</i> ) Zingiberaceae	15	3	1	0.2
5.	Putri Malu ( <i>Mimosa pudica</i> ) Fabaceae	5	-	0.3	-
6.	Lengkuas ( <i>Alpinia galangal</i> L.) Zingiberaceae	3	15	0.2	-
7.	Pacar Cina ( <i>Peperomia pellucida</i> ) Piperaceae	2	4	0.13	0.26
8.	Daon salam ( <i>Syzygium polyanthum</i> ) Myrtaceae	13	15	0.86	1
9.	Cekor ( <i>Kaempferia galangal</i> L.) Zingiberaceae	7	15	0.46	-
10.	Lidah buaya ( <i>Aloe vera</i> L.) Xanthorrhoeaceae	3	15	0.2	-
11.	Jambu batu ( <i>Psidium guajava</i> L.) Myrtaceae	5	10	0.3	0.6
12.	Ceri ( <i>Muntingia calabura</i> ) Muntingiaceae	14	5	0.93	0.3
13.	Kelor ( <i>Moringa oleifera</i> ) Moringaceae	2	15	0.13	-
14.	Mengkudu ( <i>Morinda citrifolia</i> L.) Rubiaceae	6	15	0.4	-
15.	Kumis koceng ( <i>Orthosiphon aristatus</i> ) Lamiaceae	3	3	0.2	0.2
16.	Bawang Dayak ( <i>Eleutherine bulbosa</i> ) Iridaceae	3	-	0.2	-
17.	Katu ( <i>Sauropus androgynous</i> ) Phyllanthaceae	1	1	0.06	0.06
18.	Nangka Belanda ( <i>Annona muricata</i> ) Annonaceae	13	13	0.86	0.86
19.	Sirih ( <i>Piper betle</i> L.) Piperaceae	5	-	0.3	-
20.	Kembang melati ( <i>Jasminum</i> ) Oleaceae	-	1	-	0.06
21.	Daun Sirihan ( <i>Piper anducum</i> ) Piperaceae	-	1	-	0.06
22.	Meniran ( <i>Phyllanthus niruri</i> L.) Euphorbiaceae	4	-	0.26	-
23.	Patah Tulang ( <i>Euphorbia tirucalli</i> ) Euphorbiaceae	3	4	0.2	0.26

24.	Binahong ( <i>Anredera cordifolia</i> )	Basellaceae	4	1	0.26	0.06
25.	Seret ( <i>Cyperus rotundus</i> )	Cyperaceae	-	3	-	0.2
26.	Terung Pipit ( <i>Solanum torvum</i> )	Solanaceae	1	2	0.06	0.13
27.	Pereng ( <i>Bambusoideae</i> )	Poaceae	-	2	-	0.13
28.	Pinang ( <i>Areca catechu</i> )	Arecaceae	-	4	-	0.26
29.	Niur ( <i>Cocos nucifera</i> )	Arecaceae	-	3	-	0.2
30.	Lalang ( <i>Imperata cylindrica</i> )	Poaceae	-	3	-	0.2
31.	Ruku-ruku ( <i>Ocimum sanctum</i> L.)	Lamiaceae	3	-	0.2	-
32.	Luntas ( <i>Pluchea indica</i> L.)	Asteraceae	2	-	0.13	-
33.	Pecah beling ( <i>Strobilanthea crispus</i> )	Acanthaceae	2	-	0.13	-
34.	Belimbing tunjuk ( <i>Averrhoa bilimbi</i> L.)	oxalidaceae	4	-	0.26	-
35.	Tengkapa ( <i>Asplenium scolopendrium</i> )	Aspleniaceae	-	2	-	0.13
36.	Lupun ( <i>Ficus auriculata</i> )	Moraceae	-	3	-	0.2
37.	Kembang Sepatu ( <i>Hibiscus rosa-sinensis</i> )	Malvaceae	2	7	0.13	0.43
38.	Daun Wungu ( <i>Graptophyllum</i> )	Acanthaceae	2	-	0.13	-
39.	Terung kumut ( <i>Passiflora foetida</i> )	Passifloraceae	-	1	-	0.06
40.	Lakum ( <i>Cayratia trifolia</i> )	Vitaceae	-	3	-	0.2
41.	Kayu sepang ( <i>Caesalpinia sappan</i> L.)	Caesalpiniaceae	1	-	0.06	-
42.	Letup ( <i>Physalis peruviana</i> )	Solanaceae	4	1	0.26	0.06
43.	Daun surga ( <i>Bryophyllum pinnatum</i> )	Crassulaceae	5	-	0.3	-
44.	Telaseh ( <i>Ocimum basilicum</i> )	Lamiaceae	-	5	-	0.3
45.	Bengalun Kokang ( <i>Lepisanthes amoena</i> )	Sapindaceae	-	3	-	0.2
46.	Gedang ( <i>Carica papaya</i> L.)	Caricaceae	2	-	0.13	-
47.	Pemedas Habang ( <i>Zingiber officinale</i> )	Zingiberaceae	2	-	0.13	-
48.	Coklat ( <i>Theobroma cacao</i> )	Malvaceae	-	1	-	0.06
49.	Rumput Kalah Benua ( <i>Euphorbia hirta</i> )	Euphorbiaceae	-	1	-	0.06
50.	Daon Sop ( <i>Apium graveolens</i> )	Apiaceae	14	3	0.93	0.2
51.	Pandan ( <i>Pandanus amaryllifolius</i> )	Pandanaceae	2	2	0.13	0.13
52.	Kembang Rosela ( <i>Hibiscus sabdariffa</i> )	Malvaceae	4	-	0.26	-
53.	Saoh ( <i>Manilkara zapota</i> L.)	Sapotaceae	5	-	0.3	-
54.	Tembora ( <i>Ageratum conyzoides</i> )	Asteraceae	-	2	-	0.13
55.	Kuyur ( <i>Dipterocarpus retusus</i> )	Dipterocarpaceae	-	1	-	0.06
56.	Sembong ( <i>Blumea balsamifera</i> )	Asteraceae	2	-	0.13	-
57.	Sambiloto ( <i>Andrographis paniculata</i> )	Acanthaceae	2	-	0.13	-
58.	Marwasik ( <i>Cryptocarya massoia</i> )	Lauraceae	-	1	-	0.06
59.	Daun jarak ( <i>Jatropha curcas</i> L.)	Euphorbiaceae	3	-	0.2	-
60.	Serunai ( <i>Chromolaena odorata</i> L.)	Asteraceae	1	-	0.06	-
61.	Akar Kait ( <i>Spatholobus littoralis</i> )	Fabaceae	-	3	-	0.2
62.	Sungkai ( <i>Peronema canescens</i> Jack.)	Verbenaceae	1	-	0.06	-
63.	Daun Klorofil ( <i>Vernonia amygdalina</i> )	Asteraceae	-	2	-	0.13
64.	Bidara ( <i>Ziziphus mauritiana</i> )	Rhamnaceae	2	15	0.13	1
65.	Akar Sampai ( <i>Tinospora cordifolia</i> )	Menispermaceae	-	14	-	0.93
66.	Akar Kunyit ( <i>Fibraurea tinctora</i> )	Menispermaceae	-	13	-	0.86
67.	Dandang gendis ( <i>Clinacanthus nutans</i> )	Acanthaceae	2	-	0.13	-
68.	Temulawak ( <i>Curcuma zanthorrhiza</i> )	Zingiberaceae	2	-	0.13	-
69.	Ketumbar ( <i>Coriandrum sativum</i> )	Apiaceae	15	15	0.13	-
70.	Pasak Bumi ( <i>Eurycoma longifolia</i> )	Simaroubaceae	-	15	-	1

**Table 4:** Comparison of ICF (*Informant Consensus Factor*) on two locations

No	Disease Category	ICF Values	
		Loa Lepu Villages	Muara Gusik Villages
1.	Hypertension	1	1
2.	Cholesterol	1	-
3.	Cough	1	-
4.	Sore	1	-
5.	Cold	0.75	-
6.	Fever	0.95	-
7.	Stomach ache	-	1
8.	Back pain	-	1
9.	Gout	1	1
10.	Hemorrhoids	-	0.75
11.	Itchy rash	-	1
12.	Kidney stone	-	0.85
13.	Malaria	-	0.75
14.	Diabetes	-	0.75

**Table 5:** The Highest FL (*Fidelity Level*) Percentage from Loa Lepu Village and Muara Gusik Village

Plant Name	Muara Gusik Village		Loa Lepu Village		%FL	
	Np	n	Np	n	Muara Gusik	Loa Lepu
<i>Eurycoma longifolia</i>	11	15	-	-	73	-
<i>Syzygium polyanthum</i>	15	15	13	15	100	86
<i>Annona muricata</i>	13	15	13	15	86	86
<i>Tinospora cordifolia</i>	12	15	-	-	80	-
<i>Cymbopogon nardus</i>	15	15	15	15	100	100
<i>Zingiber officinale</i>	-	-	15	15	-	100
<i>Curcuma domestica</i>	-	-	15	15	-	100
<i>Muntingia calabura</i>	-	-	14	15	-	93
<i>Apium graveolens</i>	-	-	14	15	-	93

### Conflict of Interest

The authors declare no conflict of interest.

### Authors' Declaration

The authors hereby declare that the work presented in this article is original and that any liability for claims relating to the content of this article will be borne by them.

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