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Medicinal Plants Potential of Olele Village, Kabila Bone Sub-district as Ecotourism Support

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ABSTRACT

Olele is a village with quite high tourism potential, one of which is medicinal plants which are quite high and varied. This study aimed to identify species of medicinal plants in the village and identify their potential as ecotourism support. It was conducted using an in-depth interview technique with a qualitative type. The data obtained will then be documented and identified using the book and the Plant-Net application. The results showed that 17 species of medicinal plants were identified from the results of interviews, and then validation was carried out on domestic tourists who were in the village to find out the personal interests of each tourist. The development of tourist areas has also been responded positively by the community and local government.

Keywords: Ecotourism, ethnobotany, medicinal plants, Olele Village

INTRODUCTION

Olele Village, Kabila Bone Subdistrict, is one of the villages located on the southern coast of Gorontalo Province, facing Tomini Bay. The mainland of Olele Village holds a lot of potential for ecotourism based development. In addition to the topography of the area which offers many photo spots, plant resources, especially medicinal plants, have great potential to be used as tourist support attractions. Our initial observations show a variety of medicinal plants, both those that grow wild and are cultivated by residents. As for variety, the plants encountered include binahong (*Anredera cordifolia*), and several other plants based on the results of interviews with the community can be used as medicine. The people of Olele usually use ingredients from medicinal plants to prevent or restore the condition of the body affected by disease, for example binahong (*Anredera cordifolia*) which is used to reduce itching or restore skin diseases. Some community members still use this herb on the grounds that it is easy to obtain and also saves the cost of conventional medicine. These plants grow scattered throughout the plains of Olele Village, the highlands and the coast from hamlet 1 to hamlet 4.

The variety of plants with medicinal potential is expected to support ecotourism in the village by being used as supporting attractions, for example showing traditional processing methods and also introducing these plant species to foreign and local tourists, so as to optimize Olele's potential as a tourist village. Not only the marine park, but the land can also be developed to be interesting for visitors, especially in the aspect of ecotourism. This can be a solution to the problem obtained based on the results of interviews with village officials,

namely the distribution of land potential development in the Olele Village which is not optimal.

Equitable development of ecotourism objects, especially land in the village of Olele, can improve the community's economy. In line with the research of Salam et al. (2016), the Olele community partially, most of them work in the fishery sector, especially as fishermen and some work as farmers. As fishermen, people rely on their income from potential marine products; this has an impact on family welfare. Based on village data in 2020, it can be seen that the data on the number of pre-prosperous families is 32%, pre-prosperous family 1 is 64.69%, and preposterous family 2 is 3.3%. The percentage of underprivileged families shows that the income of the community is still not optimal. Therefore, it is necessary to maximize family income by increasing the processing of potential natural resources, both marine and land (Solang and Latjompoh, 2020).

Despite of inequality distribution of ecotourism potential which centered in waters, Olele Village have a large potential of medicinal plants to be explored and considered as ecotourism object to preserve local knowledge and maximize their potential to increasing economy society.

METHODS

Study Area

Olele Village is located on the mainland of Bone Bolango Regency, and part of the area has the sea, where the beach has white sand, and only a small part of the land is used for settlement. Topography based on the height above sea level in Olele Village is 1-3 meters, only a small part has a height above sea level, namely in plantation areas which have a height of approximately 50-70 meters above sea level. The legal basis for determining the Regional Marine Conservation Area in Olele Village, Kabila Bone Subdistrict, Bone Bolango Regency is the Decree of the Regent of Bone Bolango No. 165 of 2006 issued on November 6, 2006 (Database of Conservation Areas, 2006). Geographically, Olele Village is located at position 00 24'51" – 00 24”23” and 12 30 08'59" – 12 30 09'11" east longitude, has an area of approximately 24,910 ha. The village is located on the southern coast of Tomini Bay, Kabila Bone Subdistrict, Bone Bolango Regency, Gorontalo Province. Administratively, Olele Village is bordered by Suwawa in the north, Tolotio in the east, Tomini Bay in the south, and Olohuta Village in the west (Conservation Area Database, 2006).

Referring to the statistical data of kampungkb.bkkbn.go.id (2020), the village of Olele has a population of 1023 people or 298 families. The total male population is 5330 people and 493 female residents. Olele village has health facilities in the form of one auxiliary health center. In addition to using health facilities at the *puskesmas*, for treatment, they also use medicinal plants around the house as an alternative treatment. The community cultivates plants that are known to have medicinal potential, but there are also several species of medicinal plants that are used to be allowed to grow wild in the village.

This study was carried out from October 2021 to January 2022 located in four hamlets of Olele Village, namely Hamlet 1 (Idanto), Hamlet 2 (Olele Tengah), Hamlet 3 (Pentadu), and Hamlet 4 (Hungayokiki).

Data Collection

Interview data were collected using an audio recorder and conducted direct interviews with the information using in-depth interview method. Interviews were conducted in-depth without using a guide with the impression of being free but still leading to the required object. Determination of the sources itself was done through the snowball sampling method so that the data obtained is more traceable and in-depth until saturated in the sense that the interview and observation result not generate new data. Plant data have been obtained through interviews, and then is proven to exist in the field. Once obtained, the plant will be documented using a camera.

Data Analysis

The data have been collected and presented in the form of a table, and then analyzed based on the species and plant families, the organs used, and the types of diseases treated using the medicinal plants in a narrative manner. The results of the documentation were presented as supporting data for easy identification.

RESULTS AND DISCUSSION

Medicinal Plant Diversity

There were 17 species of medicinal plants found. Comparative data on plants that are cultivated and grown wild can be described in Table 1. Based on the results of observations and interviews, the data shows that as many as 13 species are cultivated plants and 4 species of wild plants. These results indicate that the dominance of medicinal plants used by the community is cultivated plants.

Table 1. Description of the comparison of cultivated and wild plants

No	Local and Scientific Names	Growing status	
		Cultivation	Wild
(1)	(2)	(3)	(4)
1	Temulawak (*humopoto*) / *Curcuma zanthorizza* Roxb	√	
2	Daun sirsak (*langge lo wanoha*) / *Annona muricata* L	√	
3	Kumis kucing (*busungi lo tete*) / *Orthosiponn aristatus* (Blume) Miq	√	
4	Sukun (*amo*) / *Artocarpus atilis* (Parkinson) Fosberg	√	
5	Ketumbar (*katumbali*) / *Coriandrum sativum* L	√	
6	Serai (*timbuwale*) / *Cymbopogon citratus* (DC.) Stapf	√	
7	Celery (*sedrei*) / *Apium graveolens* L	√	
8	Cucumber (*katimu*) / *Cucumis sativus* L	√	
9	Sirih (*tembe*) / *Piper betle* L	√	
10	Binahong (*pinahong*) / *Anredera cordifolia* (Ten) Steenis		√
11	Meniran (*dukung anak*) / *Phylanthus niruri* L		√
12	Tapak dara (*pica piring*) / *Cataranthus roseus* L. (G)Don	√	
13	Kucai (*bawang cina*) / *Allium schoenoprasum* L	√	
14	Tomat hutan (*butu-butu*) / *Circaea lutetiana* L		√

15	Kersen (*gerson*) / *Muntingia calabura* L	√	
16	Daun Benalu (*pohehu*) / *Loranthus* sp.		√
17	Ki Tolod (*cotolok*) / *Hippobroma longiflora* (L)G Don	√	
	Total	13	4

Olele Village is divided into 4 hamlets. The hamlets include Hamlet Idanto (Dusun 1), Hamlet Olele Tengah (Dusun 2), Hamlet Pentadu (Dusun 3), and Hamlet Hungayokiki (Dusun 4). Each hamlet has a different topography from one another, Dusun 1 and 2 are located far from the coast, while hamlets 3 and 4 are directly opposite the coast. Community professions, although classified as varied, are generally categorized based on the topography of the hamlet. Hamlets 1 and 2 are dominated by the profession of farmers, while hamlets 3 and 4 are dominated by the fishing profession. Based on the results of observations, we describe the presence of medicinal plant natural resources in Table 2.

Table 2. Percentage of presence of medicinal plants per hamlet

No	Name	Local Name	Quantity	Percentage
1	Idanto	Sirih, Serai, Pinahong	3	17.64%
2	Olele Tengah	Temulawak, Daun Sirsak, Kumis Kucing, Tomat Hutan, Bawang Cina, Pica piring, Dukung anak, Daun sukun, Mentimun	9	52.94%
3	Pentadu	Ketumbar, Gerson, Daun Benalu	3	17.64%
4	Hungayokiki	Cotolok dan Seledri	2	11.76%
		Total	17	100%

Based on the description in the Table 2, the data shows that the Olele Tengah Hamlet (Dusun 2) has the highest number of medicinal plants as many as 9 species with a percentage of 52.94%, then followed by Idanto Hamlet (Dusun 1) and Pentadu (Dusun 3) with each having a total of 17.64%.

Characteristic of Respondents

Based on the results of interviews with resource persons as many as 6 respondents who use medicinal plants and the characteristics of respondents who identified by gender can be described in the Table 3 and also the percentage as follows:

Table 3. Identification of respondents

No	Gender Quantity	Quantity	Percentage
1	Male	1	16.67 %
2	Female	5	83.33 %
	Total	6	100.00 %

Based on the results shown by the Table 3, the characteristics of respondents who use medicinal plants in Olele Village are 6 people with 5 women with a percentage of 83.33% and 1 person with a percentage of 16.67%. This shows that the number of users of medicinal plants is dominated by the female. The raw data shows that the professions of the people who use medicinal plants as respondents are housewives, traders, village heads, and farmers.

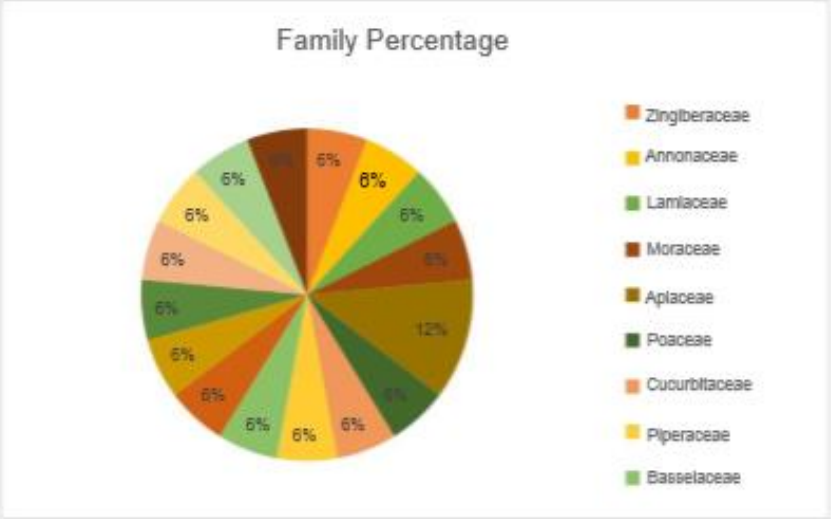
Medicinal Plant Species

Based on the results of interviews and observations in the field with the community using medicinal plants, we found 17 medicinal plant species which can then be described as follows (Table 4):

Table 4. Description of medicinal plants

No (1)	Local Name (2)	Scientific Name (3)	Habitus (4)	Family (5)
1	Temulawak	*Curcuma zanthorizza* Roxb	Herb	Zingiberaceae
2	Sirsak	*Annona muricata* L	Tree	Annonaceae
3	Kumis kucing	*Orthosiponn aristatus* (Blume) Miq	Herb	Lamiaceae
4	Sukun	*Artocarpus atilis* (Parkinson) Fosberg	Tree	Moraceae
5	Ketumbar	*Coriandrum sativum* L.	Tree	Apiaceae
6	Serai	*Cymbopogon citratus* (DC.) Stapf	Herb	Poaceae
7	Seledri	*Apium graveolens* L.	Herb	Apiaceae
8	Mentimun	*Cucumis sativus* L.	Herb	Cucurbitaceae
9	Sirih	*Piper betle* L.	Shrub	Piperaceae
10	Pinahong	*Anredera cordifolia* (Ten) Steenis	Herb	Basselaceae
11	Dukung anak	*Phyllanthus niruri* L.	Herb	Phyllantaceae
12	Pica piring	*Cataranthus roseus* (L.) G.Don	Shrub	Apocynaceae
13	Bawang cina	*Allium schoenoprasum* L.	Herb	Liliaceae
14	Tomat hutan	*Circaea lutetiana* L.	Shrub	Onagraceae
15	Gerson	*Muntingia calabura* L.	Tree	Muntingiaceae
16	Benalu	*Loranthus* sp.	Herb	Loranthaceae
17	Cotolok	*Hippobroma longiflora* (L.) G.Don	Bush	Campanulaceae

Observation results showed 17 species with varied habitus and families, 16 plant families were identified, dominated by *Apiaceae* family with 2 plant species and a percentage of 11.76%, and the rest by 15 other families with 1 other plant species each. Between family *Zingiberaceae, Annonaceae, Lamiaceae, Moraceae, Poaceae, Cucurbitaceae, Piperaceae, Basselaceae, Phyllantaceae, Apocynaceae, Amaryllidaceae, Onagraceae, Muntingiaceae, Loranthaceae*, and *Campanulaceae* with a percentage of 5.88% each, which can be interpreted in the following diagram (Figure 1):



Source: Personal data processing

Figure 1. Medicinal plant family

As for the variety of medicinal plant habitus identified, there are 9 species with shrubs habitus, 3 species habitually shrubs dwelling, 4 tree species, and 1 tree-dwelling species, furthermore can be interpreted in Table 5.

Table 5. Habitus percentage

No	Habitus	Quantity	Percentage
1	Herb	9	52.94%
2	Shrub	3	17.64%
3	Bush	1	5.88%
4	Tree	4	23.53%
	Total	17	100%

The data showed that the dominant percentage of habitus was herb with 52.94%, followed by tree with percentage 23.52%, shrub as many as 17.64%, and the last is bush 5.88%. Identified as many as 17 species used as medicinal plants. The organs used as plants drugs, among others, can be described in Table 6.

Table 6. Decription of medicinal plant used organ

No	Local and Scientific Names	Organs used
1	*Curcuma zanthorizza* Roxb	Rhizome
2	*Annona muricata* L	Leaf
3	*Orthosiponn aristatus* (Blume) Miq	Leaf
4	*Artocarpus atilis* (Parkinson) Fosberg	Leaf
5	*Coriandrum sativum* L.	Seed Simplicia
6	*Cymbopogon citratus* (DC.) Stapf	Stems
7	*Apium graveolens* L.	Leaf
8	*Cucumis sativus* L.	Fruit
9	*Piper betle* L.	Leaf
10	*Anredera cordifolia* (Ten) Steenis	Leaf
11	*Phyllanthus niruri* L.	Whole plant

12	*Cataranthus roseus* (L.) G.Don	Leaf
13	*Allium schoenoprasum* L.	Whole plant
14	*Circaea lutetiana* L.	Whole plant
15	*Muntingia calabura* L.	Leaf
16	*Loranthus* sp.	Leaf
17	*Hippobroma longiflora* (L.) G.Don	Flower, Leaf

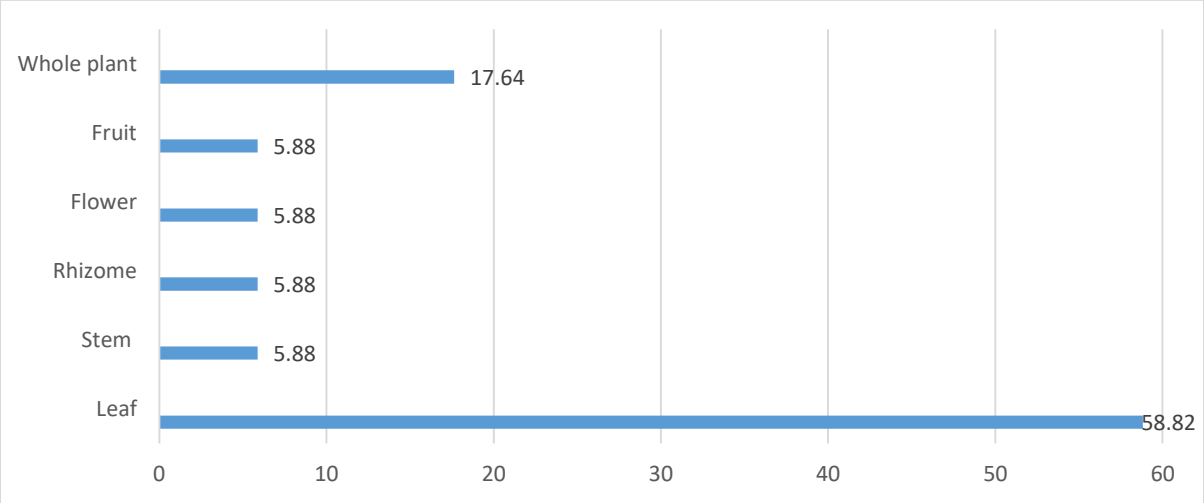


Figure 2. Percentage of organs used

The results showed that the highest percentage of organs used as medicine was the leaves as many as 58.82% with a total of 10 species, then whole plants which were 17.64% with the number of species, followed by stem organs, rhizomes, flowers, and fruit as many as 5.88% with the number of species one each.

Use and Process Technique of Medicinal Plants

The results showed that the use and processing of medicinal plants was centered on two techniques, namely processed and processed without processing. The process can be described in Table 7.

Table 7. Description of processed and unprocessed medicinal Plants

No	Medicinal Plants with processing	Medicinal plants without processing
1	Temulawak, Sirsak, kumis kucing, sukun, ketumbar, serai, seledri, mentimun, sirih, pinahong, dukung anak, pica piring, tomat hutan, gerson, daun benalu, cotolok	Bawang cina, cotolok
Total	16 species	2 species

The processing of medicinal plants used by the community is dominated by boiling and brewing techniques using warm water and concentrated on 16 species, while the other 2 species can be used directly with the twisted technique and also pounded as external medicine. The use of medicinal plants is centralized as internal medicine and also as external medicine. What is meant by internal medicine is a potion to be consumed with the aim of overcoming diseases that are inside the body, while external medicine is meant a potion used

to treat wounds and bruises outside the body. The use of medicinal plants can be described in Table 8.

Table 8. Description of the use of medicinal plants

No	Internal Medicine	External Medicine
1	Temulawak, kumis kucing, daun sirsak, sirih, serai, pinahong, mentimun, dukung anak, bawang cina, tomat hutan, ketumbar, cotolok, daun benalu, gerson, sukun, seledri, pica piring	Cotolok, bawang cina
Total	17 Species	2 Species

The results showed that the use of medicinal plants consisted of 17 species used to treat diseases in the human body, and 2 species which aim to treat external wounds such as cuts and bruises and relieve fever.

Disease Treated Using Medicinal Plants

The results of observations showed that the medicinal plants used by the people of the village of Olele are able to treat. There are quite a lot of variations in the disease, which can then be described in Table 9.

Table 9. Disease treated using medicinal plants

No	Type of Disease	Disease Name
1.	Chronic disease	Stomach acid, high blood pressure, cholesterol, chest pain, gout, tumor, diabetes, asthma
2.	Non-chronic disease	Aches and pains, body odor, backache, heel pain, cramps during menstruation, recovery after surgery, cough, fever, cataracts, wounds

Based on the identification results, data on types of diseases that can be treated using medicinal plants are 18 diseases with a total of 8 chronic diseases and non-chronic diseases as many as 10 diseases. Medicinal plants are used generally to treat non-chronic diseases as first aid before using medical assistance at the community health center.

Table 10. Description of interview results with tourist

No	Traveler's Name	Origin Traveler	Response Regarding Drug Plant Knowledge information
1.	CS	Makassar	Quite interesting, opens up new insights
2.	SNP	West Borneo	Knowing new knowledge about the use of medicinal plant
3.	FWS	Bandung	Adding to existing knowledge about medicinal plants, very interested
4.	JBS	Malang	Just found out about the use of medicinal plants and quite interested

The Potential of Medicinal Plant Ecotourism as Herbal Tourism

Potential of medicinal plants as a tourist attraction is quite interesting if it is developed as supporting tourism in the village of Olele (Table 10). The results show good reactions and perceptions from tourists regarding the concept of developing ecotourism based on traditional knowledge.

The results of interviews with tourists showed a significant interest in knowledge of traditional medicine and also add insight into the use of medicinal plants which are quite varied and useful as family health sufferers (TOGA). Interview results proceed to the government to find out the response of the local government regarding the development of medicinal plants as a new tourist attraction in the village of Olele. The local government said that there is a potential place for developing herbal tourism using community land, namely the residents' home yards. The concept that has been mention before regards to their medicinal plants potential to develop as an ecotourism object. The society will offer those medicinal plants as an option to heal some diseases like physical injury and some chronically disease. With this concept also this society will introduce those medicinal plants species directly to the tourist or made some books or a small pamphlet and share them among the tourist.

CONCLUSIONS

Based on the results of research that has been carried out in the village of Olele, we can give some conclusions as follows: the medicinal plants used in Olele Village are 17 species with 16 families including *Apiaceae, Zingiberaceae, Annonaceae, Lamiaceae, Moraceae, Poaceae, Cucurbitaceae, Piperaceae, Basselaceae, Phyllantaceae, Apocynaceae, Amaryllidaceae, Onagraceae, Muntingiaceae, Loranthaceae* as well as *Campanulaceae*. The most part of the plant used as medicine by the Olele village community is the leaf organ, then the whole plant, as well as the rhizome, stem, fruit, and flower organs. In addition, medicinal plants are processed by boiling and brewing using warm water, without processing using the twist and mash technique. The most widely used medicinal plants for internal medicine and treating non-chronic diseases. The number of diseases that can be treated using medicinal plants in the village of Olele is 18 diseases with a total of 8 chronic diseases and 10 non-chronic diseases. Tourists are quite enthusiastic about traditional knowledge regarding the use of medicinal plants as supporting ecotourism.

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REFERENCES

Ani, N., Rohyani, I., and Ustadz, M. 2018. Pengetahuan Masyarakat tentang Jenis Tumbuhan Obat di Kawasan Wisata Alam Madapangga Sumbawa. *Jurnal Pijar Mipa* 13: 160-161.

Data Kawasan Konservasi Kawasan Konservasi Desa Olele (kkp.go.id). accessed 22 October 2021.

Fandeli, C. 2000. *Pengusahaan Ekowisata*. Fakultas Kehutanan UGM, Yogyakarta.

Fandeli, C. 2002. *Perencanaan Kepariwisataan Alam*. Fakultas Kehutanan UGM, Yogyakarta.

Ibrahim. 2016. *Inventarisasi Tumbuhan Obat Tradisional Suku Dayak Bakumpai di Kecamatan Murung, Kabupaten Murung Raya*. Skripsi IAIN Palangkaraya.

Kartiwa, S., and Martowikrido, W. 1992. *Hubungan antara Tumbuhan dan Manusia Dalam Upacara Adat di Indonesia*. Departemen Pendidikan dan Kebudayaan RI, Departemen Pertanian RI, LIPI, Perpustakaan Nasional, Bogor.

Nurlin, K., Kandowangko, N.Y., and Baderan, D.W. 2013. *Inventarisasi Tumbuhan Bawah di Kawasan Penambangan Emas Desa Hulawa Kecamatan Sulamata Kabupaten Gorontalo Utara*. Skripsi Universitas Negeri Gorontalo.

Nurmayulis, and Hermita, N. 2015. Potensi Tumbuhan Obat dalam Upaya Pemanfaatan Lahan Pekarangan oleh Masyarakat Desa Cimenteng Kawasan Taman Nasional Ujung Kulon. *Jurnal Agrogolia* 4(1): 1-7.

Permadi, L.A. 2008. Faktor-Faktor yang Mempengaruhi Konsumen dari Etnis Sasak Untuk Membeli Produk Tradisional di Lombok Tengah. *Jurnal Riset Manajemen* 8(2).

Purwanto, Y., and Waluyo, E. 1992. *Etnobotani Suku Dani di Lembah Baliem-Irian Jaya: suatu telaah tentang pengetahuan dan pemanfaatan sumber daya alam tumbuhan*. Departemen Pendidikan dan Kebudayaan RI, Lembaga Ilmu Pengetahuan Indonesia, Bogor.

Salam, A., Hamzah, S.N., Perairan, M.S., and Perikanan, F. 2016. Kearifan Lokal Masyarakat Nelayan Desa Olele. Nike: *Jurnal Ilmiah Perikanan dan Kelautan* 4(2): 85-90.

Soekarman, R. 1992. Status Pengetahuan Etnobotani di Indonesia. *Makalah dalam Seminar dan Lokakarya Nasional dan Etnobotani*: 19-20.

Solang, M., and Latjompoh, M. 2020. Pemberdayaan Masyarakat Desa Olele Melalui Pelatihan Pembuatan Nuget Ikan Nike Kelor Dan Cake Kelor. *Jurnal Pengabdian Masyarakat Pinang Masak* 1(2): 11-18.

Sukini, 2013. *Inventarisasi Tumbuhan Obat Tradisional yang Digunakan Masyarakat di Kelurahan Muara Laung I*. Skripsi Universitas Palangkaraya.

Syamsul, H. 2005. *Ramuan Tradisional ala 12 Etnis Indonesia*. Penebar Swadaya, Jakarta.

Tjitrosoepomo, G. 1998. *Taksonomi Umum*. Gadjah Mada University Press, Yogyakarta.

Unus, S. 2000. *Obat Mujarab dan Pekarangan Rumah. 1 ed*. Papas Sinar Sinanti, Jakarta.

Yusro, F., Hardiansyah, G., Erianto, Mariani, Y., Aripin, Hendarto, Nurdwiansyah, D. 2020. Biodiversity of Medicinal Plants in Tawang Serimbak Forest, Ensaid Panjang Village, Sintang Regency. *Jurnal Biologi Tropis* 20(2): 245-255.

Zaman, M.Q. 2009. *Etnobotani Tumbuhan Obat di Kabupaten Pamekasan-Madura Provinsi Jawa Timur*. Skripsi Universitas Islam Negeri Maulana Malik Ibrahim.

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