LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
KARYA ILMIAH : PROSIDING*

Judul Karya Ilmiah : Weeds Community Structure on The Rice Field (Oryza sativa L.) in Bulusari Village Sayung District, Demak Regency
Jumlah Penulis : 3 orang
Status Pengusul : penulis ke-2
Identitas Makalah :
   a. Judul Prosiding
   b. ISBN/ISSN
   c. Tahun terbit, Tempat pelaksanaan
   d. Penerbit/Organizer
   e. Alamat repository PT/ web repository
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Kategori Publikasi Makalah :
☑ Prosiding Forum Ilmiah Internasional
☐ Prosiding Forum Ilmiah Nasional

[beri tanda V pada kategori yang tepat]

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Catatan penilaian artikel oleh reviewer :

* dilihat oleh dua Reviewer secara terpisah
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Prof. Dr. Tri Retnamingsih Soeprobowati, M.App.Sc
NIP. 196404291989032001
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IDENTITAS MAKLAH
a. Judul Prosiding
The 8th International Seminar on New Paradigm and Innovation on Natural Science and Its Application
26 September 2018, Central Java, Indonesia

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10.1088/1742-6596/1217/1/012177

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V Prosiding Forum Ilmiah Internasional

Kategori Publikasi Makalah

PROSIDING Forum Ilmiah Nasional

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"Kerangkapan unsur books bok, ruang lingkup & kedalaman pembahasan barang lansung, struktur konsistensitas tulisan harus bagus dan dengan suby. Penulis harus meratai data lulusan, unsur & kualitas terbitan baik. Harap silah perhati & editor sembuny dari Indonesia"  
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Reviewer 2  

Dr. Erma Prihastanti, M.Si  
NIP. 196802191991032001  
Bidang ilmu/Unit kerja : Biologi/ Dep. Biologi FSM

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Nilai pengusul

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Prof. Dr. Tri Kelistningiah Soepriyowati, M.App.Sc
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PREFACE

The 8th International Seminar on New Paradigm and Innovation on Natural Sciences and Its Application (ISNPINSA-8) is annual seminars organized by Faculty of Sciences and Mathematics (FSM) Diponegoro University and has been successfully conducted since 2011. The ISNPINSA-8 was held in Semarang, Indonesia on September 26th 2018. The aims of ISNPINSA are to facilitate brain storming and state of the art information in field of sciences and mathematics; to increase innovation of technology that can be applied in industries; to contribute in formulating strategy to increase the role of science for community; and to stimulate collaboration between industries, researchers and government to increase community welfare. The theme of 8th ISNPINSA in 2018 is “Science and Applied Science for Sustainable Development Goals”.

The number of participants of the seminar were 272 including keynote speakers, invited speakers, oral presenters, poster presenters, and non presenters coming from various institutions of various countries, including Japan, Philippines, Thailand, Malaysia, Australia, Bangladesh, China, Kazakhtan, Vietnam and those who come from all parts of Indonesia consist of researchers, lecturers, postgraduate and undergraduate students from various universities. There are 272 papers were presented in this seminar, consist of 5 keynote speakers, 237 oral presentations, and 30 poster presentations. After the selection process, there are 184 articles selected papers to be published in the present conference proceeding. This is the largest number of papers and participants for eight times the implementation of ISNPINSA. The scope of the field of participants comes from various fields including biology, physics, chemistry, statistics, mathematics, informatics, environment, public health, and relevant fields that contribute to sustainable development.

The Editors
Dr.Eng. Ali Khumaeni Sapto
Purnomo Putro, Ph.D. Rully
Rahadian, Ph.D.
CONFERENCE PHOTOGRAPHS

Opening ceremony by Dr.Eng. Ali Khumaeni (Chairman of The 8th ISNPINSA 2018)

Welcoming speech by Prof. Dr. Widowati (Dean of Faculty of Science and Mathematics, Diponegoro University)
Welcoming speech by Prof. Dr. Ambariyanto, M.Sc (Vice Rector of Research and Innovation, Diponegoro University)

Photo session (Vice Rector of Diponegoro University, Dean of Faculty of Science and Mathematics, Keynote Speakers, and Committee)
Photo session (Organizing Committee)

Plenary Session by Prof. Kaemwich Jantama, Ph.D. (Suranaree University of Technology, Thailand)
Plenary Session by Prof. Dr Henk Heijnis (Australian Nuclear Science and Technology Organization (ANSTO), Australia)
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30. Heri Sugito, M.Si.
31. Fajar Ariyanto, M.Si.
32. Dr. Udi Harmoko
33. Dr. Rahmat Gernowo
LIST OF SPEAKER

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Prof. Elmer S. Estacio, Ph.D.  National Institute of Physics, University of the Philippines, Manila, Philippines
Prof. Dr. Kazuyoshi Kurihara  University of Fukui, Japan
Prof. Dr. Kaemwich Jantama, Ph.D.  Suranaree University of Technology, Thailand
Prof. Dr. Hendrik Heijnis  Australian Nuclear Science and Technology, Australia
Prof. Dr. I Gede Wenten  Institut Teknologi Bandung, Indonesia

Invited Speaker:

Dr. Retno Kusumaningrum  Diponegoro University, Semarang, Indonesia
Sutimin  Diponegoro University, Semarang, Indonesia
Prof. Dr. Heri Sutanto  Diponegoro University, Semarang, Indonesia
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26 September 2018, Central Java, Indonesia

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Accepted papers received: 27 March 2019
Published online: 17 June 2019

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Inventory and biodiversity medicinal plants of dayak tomun society in lopus village Lamandau regency central Kalimantan

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Abstract. Dayak Tomun was one of Dayak tribe lived in the area of Lamandau Regency of Central Kalimantan. Knowledge of medicinal plants of Dayak Tomun society retrieved from ancestral knowledge or their ancestors. The absence of documentation from the study of the knowledge of medicinal plants, then the Dayak Tomun to do Ethnobotany studies. This research aim was examined deeper knowledge and utilization of Dayak Tomun society on the medicinal plant. The method used was the semi-structured interview and participatory observations involving the six key informants of the profession as a shaman. Results of the study were found that 73 species and 69 genera, 43 family medicinal plants with the dominant family (9.59%) were the Zingiberaceae. Part of the medicinal plants that have most frequencies used by Dayak community Tomun is a leaf (38.38%), mixed with the boiled way (50%) and consumed with the drink (41.10%). The tradition of processing and utilization of medicinal plants by the Dayak Tomun society is important to apply and further preserved, so the local wisdom of the traditional medicine will remain awake.

1. Introduction

Indonesia is a country that has a diversity of plants as much as 9600 plants which some 400 tribes in Indonesia utilization plants. Indonesia has one of the largest of the tribe biodiversity from the entire country from Sabang until Merauke. Tribes in Indonesia depend on the natural resources in the life of a day-day [1]. One of the regions in Indonesia that has the diversity of tribal communities is the Isles of Borneo.

Borneo has biodiversity plants on forest vegetation in abundance. The number of potential plants to serve as a source of drugs. Many societies are living in Kalimantan forest area that the harnesses her everyday plants to treat disease [2]. One of the Kalimantan provinces has an abundance of plant medicines are potentially Central Kalimantan.

Central Kalimantan is an area that has the potential to support plants biodiversity of traditional community knowledge. Utilization of plant community characteristics makes the Dayak tribe in Borneo [3]. Local communities in Central Kalimantan has a wide utilization of plants for everyday life, especially for local communities living in forest areas [4]. The tribe that settled lives come within the forests of Central Kalimantan, one of which is the Dayak Tomun.

Dayak Tomun is the community's traditional Dayak of Borneo settled on the forest area in the region of Central Borneo Lamandau Regency. Dayak Tomun society has local knowledge of the
natural environment, such as the utilization of herbs for medicinal [5]. Dayak Tomun society has local knowledge inherited by the ancestors of hereditary, the development of the times will be reduced. This is because of a lot of the next generation who are affected by the modernization culture [6].

Local knowledge in the utilization of medicinal plants on a Dayak Tomun society in the Lamandau has never been examined, documentation and inventoried. The thing that makes the local knowledge will disappear. Therefore, activities regarding medicinal plants inventoried in Dayak Tomun society especially in the Lopus Village should be examined, so that the hope retrieved database and knowledge regarding the types of plants that can be used as medicinal plants.

2. Method and Material

**Study area**

Research conducted on Lopus Villages in Delang District, Lamandau Regency of Central Kalimantan. The process of researching January-March 2018. In the geographical location is set on research on latitude $1^\circ 37' 56.90''$S and longitude $111^\circ 2' 24.29''$ E (Figure 1).

**Data collection**

The process to get the data of the research done through the activities of collected type and number of inventory. The data will be retrieved by first determining the key informants from the Dayak Tomun society in the village of Lopus. Key informants were determined by purposive sampling method. Key Informant of Dayak Tomun society has criteria which are believed as one of the treatments in the Tomun Dayak. Key informant retrieved as many as seven shamans (moalap or poalap). Logging activities and an inventory of medicinal plants were done with a semi-structured interview [7] and the participatory exploration [8] by involving key informant.

**Data analysis**

The results of the observation data collection will be analyzed in qualitative descriptive by identifying, determination and an inventory of the types of medicinal plants are used. The overall result will be in tabulation, presentation and discussed by comparing the existing literature.
3. Results and Discussion

The diversity of types of medicinal plants

Based on the observations obtained as many as 73 plant species with 69 genera and 43 species of that family are used within the Dayak Tomun society in the Lopus Villages (table 1.). These kinds of medicinal plants found in the area of the Dayak Tomun society in the village of Lopus can be said to overflow because of the many plants that could potentially be discovered as a cure.

Types of plants local Dayak community Tomun obtained also have the same types of plants are utilized and found on the other Dayak communities. On Dayak Kendayan society, Daro’, Bukat and Iban in West Kalimantan and South Kalimantan Dayak medicinal plants the same type utilized by the Dayak Tomun society encompasses plants Tinospora crispa L., Kaemferia galanga, Morinda citrifolia L., Justicia gendarussa, Lansium domesticum, Carica papaya, Agerantum conyzoide, Psidium guajava L., and Eurycoma longifolia Jack [9, 10].

On medicinal plants that are used in the general Dayak Tomun in the Lopus Village also found the kinds of plants that enter into the category of a red list of the IUCN and CITES, among others, Eusideroxylon zwageri Teijsm. & Binn. And Eurycoma longifolia Jack. Kayu ulin plant (Eusideroxylon zwageri Teijsm. & Binn.) in the entry in the category of vulnerable [11], while pasak bumi (Eurycoma longifolia Jack) fall into the category of threatened plants [12].

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<th>Benefit (as a medicine)</th>
<th>Part of Plants</th>
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</thead>
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<td><em>Achasma coccineum</em> (Blume) Valeton</td>
<td>Achasma</td>
<td>Zingiberaceae</td>
<td>Influenza, diarrhea, toothache</td>
<td>Leaf, root, fruit</td>
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<td>2. Jerangau</td>
<td><em>Acorus calamus</em> L.</td>
<td>Acorus</td>
<td>Araceae</td>
<td>Abdominal diseases, headache, witchcraft</td>
<td>Leaf, stem</td>
</tr>
<tr>
<td>No.</td>
<td>Plant Name</td>
<td>Family</td>
<td>Uses and Conditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----</td>
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<td></td>
</tr>
<tr>
<td>3.</td>
<td>Kaning Kambing</td>
<td>Ageratum conyzoides (L.) L.</td>
<td>Ageratum Asteraceae</td>
<td>Wound medicines</td>
<td>Leaf</td>
</tr>
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<td>4.</td>
<td>Keladi Kulang Kulit/ Sengkulit</td>
<td>Alocasia zebrina Schott ex Van Houtte</td>
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<td>Root</td>
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<td>6.</td>
<td>Pulai</td>
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<td>Areca catechu L.</td>
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<td>Fruit</td>
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<td>10.</td>
<td>Kapoak</td>
<td>Artocarpus elasticus Reinw. ex Blume</td>
<td>Moraceae</td>
<td>Sawan (keouhunan)</td>
<td>Stem</td>
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<td>11.</td>
<td>Kesumba</td>
<td>Bixa orellana L.</td>
<td>Bixa Bixaceae</td>
<td>Postpartum medicines (sembrani)</td>
<td>Leaf, root</td>
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<td>12.</td>
<td>Sambang</td>
<td>Blumea balsamifera (L.) DC.</td>
<td>Blumea Asteraceae</td>
<td>Malaria</td>
<td>Leaf</td>
</tr>
<tr>
<td>14.</td>
<td>Cabai Rawit (Tukas)</td>
<td>Capsicum sp</td>
<td>Capsicum Solanaceae</td>
<td>Toothache</td>
<td>Root</td>
</tr>
<tr>
<td>15.</td>
<td>Pepaya Honah (Tukas)</td>
<td>Carica papaya L.</td>
<td>Carica Caricaceae</td>
<td>Toothache</td>
<td>Root</td>
</tr>
<tr>
<td>16.</td>
<td>Ketepang</td>
<td>Caryota mitis Lour.</td>
<td>Caryota Rutaceae</td>
<td>Itch medicines</td>
<td>Root</td>
</tr>
<tr>
<td>17.</td>
<td>Blumea balsamifera (L.) DC.</td>
<td>Blumea Asteraceae</td>
<td>Malaria</td>
<td>Leaf</td>
<td></td>
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<tr>
<td>18.</td>
<td>Chromolaena odorata (L.) R.M.King &amp; H.Rob.</td>
<td>Chromolaena Asteraceae</td>
<td>Wound medicines</td>
<td>Leaf</td>
<td></td>
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<tr>
<td>19.</td>
<td>Kembang Raya</td>
<td>Clerodendrum japonicum (Thunb.) Sweet</td>
<td>Clerodendrum Verbenaceae</td>
<td>Fever for toddlers and children</td>
<td>Leaf</td>
</tr>
<tr>
<td>20.</td>
<td>Kayu Ulat</td>
<td>Coniogramme fraxinea (D. Don) Diels</td>
<td>Coniogramme Polypodiaceae</td>
<td>Itch medicines</td>
<td>Root</td>
</tr>
<tr>
<td>22.</td>
<td>Tetabai</td>
<td>Costus speciosus J.Koenig Sm.</td>
<td>Costus Zingiberaceae</td>
<td>Postpartum medicines (sembrani)</td>
<td>Leaf, stem, root</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Species</td>
<td>Medicinal Part</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>-----</td>
<td>-------------</td>
<td>--------------------------------------------------------------------------</td>
<td>----------------</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
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<tr>
<td>23</td>
<td>Jangkut</td>
<td>Curculigo capitulata O.K</td>
<td>Root</td>
<td>Itch</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Kasai</td>
<td>Curcuma Domestica Val.</td>
<td>Rhizome</td>
<td>Abdominal diseases</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Sarai</td>
<td>Cymbopogon citratus (DC.) Stapf</td>
<td>Leaf, stem, root</td>
<td>Sprains</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Totanjan</td>
<td>Dianella nemerosa Lam.</td>
<td>Leaf, root</td>
<td>Postpartum medicines (sembrani)</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Simpur</td>
<td>Dillea excelsa (Jack) Martelli ex Gilg.</td>
<td>Bark</td>
<td>Wound medicines</td>
<td></td>
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<tr>
<td>28</td>
<td>Bomban</td>
<td>Donax caumaeforis (G.Forst) K. Schum</td>
<td>Leaf</td>
<td>Eye diseases</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Genguho</td>
<td>Drynaria rigidula Bedd.</td>
<td>Tuber</td>
<td>Postpartum medicines (sembrani)</td>
<td></td>
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<tr>
<td>30</td>
<td>Pasak Bumi</td>
<td>Eurycoma longifolia Jack</td>
<td>Root</td>
<td>Fever, malaria</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Kayu Ulin</td>
<td>Eusideroxylon zwageri Teijsm. &amp; Binn.</td>
<td>Stem</td>
<td>Sawan (keouhunan) people died</td>
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<td>32</td>
<td>Akar Kuning</td>
<td>Fisuraerea chloroleuca Miers</td>
<td>Root</td>
<td>Hepatitis</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Krayo</td>
<td>Ficus stricta (Miq.) Miq.</td>
<td>Root</td>
<td>Root</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Seloban</td>
<td>Geunsia pentandra (Roxb.) Merr.</td>
<td>Leaf</td>
<td>Cancer medicines</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Hohidup</td>
<td>Justicia gendarussa Burm.f.</td>
<td>Leaf, root</td>
<td>Postpartum medicines (sembrani)</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Cokur</td>
<td>Kaempferia galanga L.</td>
<td>Rhizome, leaf</td>
<td>Caker sores, fever for toddlers and children, farm animal diseases</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Sesabi Macan</td>
<td>Lactuca virosa L.</td>
<td>Leaf</td>
<td>Wart infection on the skin</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>Lansap</td>
<td>Lansium domesticum Correa</td>
<td>Leaf</td>
<td>Itch medicines</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>Kayu Angin</td>
<td>Mallotus paniculatus (Lam.) Mull. Arg</td>
<td>Leaf</td>
<td>Headache</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>Kapuyembun</td>
<td>Mapania cuspidata (Miq.) Uittien</td>
<td>Root, stem</td>
<td>Root</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>Kelonudu</td>
<td>Melastoma malabathricum L.</td>
<td>Leaf, bark, root</td>
<td>Cancer medicines, toothache, diarrhea</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>Bongkah</td>
<td>Merremia peltata (L.) Merr.</td>
<td>Root, leaf</td>
<td>Toothache, itch medicines</td>
<td></td>
</tr>
</tbody>
</table>
43. Kayu Malu  *Mimosa pudica* L.  Mimosa Leguminosae  Insomnia, traet trance *(kepuhunan)*  Root

44. Lalangsap Temuni  *Monstera adansonii* Schott  Monstera Araceae  Diarrhea, diarrhoea *(membocor)*  Leaf

45. Mengkudu  *Morinda citrifolia* L.  Morind Rubiaceae  Cough medicines, tonsillitis  Root, fruit

46. Pisang Raya  *Musa acuminata* Colla  Musa Musaceae  Toothache  Root

47. Jembakah Anak Hantu  *Myrmecodia tuberosa* Jack  Myrmecodia Rubiaceae  Diseases of internal organs  Tuber


49. Pohon Rokok Mentawalan  *Phrynium villosulum* Miq.  Phrynium Marantaceae  Caker sores, toothache  Leaf, root

50. Sirih  *Phyllanthus urinaria* L.  Phyllanthus Euphorbiaceae  Kidney diseases  Root

51. Tumbak Malo Jambu Pasir  *Polygonatum biflorum* (Walter) Elliot  Polygonatum Liliaceae  Toothache, disentry, abdominal diseases  Leaf

52. Bebaro  *Psychotria viridis* Ruiz & Pav.  Psychotria Rubiaceae  Postpartum medicines *(sembra*ni)  Leaf

53. Sadawa Manuk Sengkubak  *Pterandra rostrata* M. P. Nayar  Pterandra Melastomaceae  Caker sores  Root

54. Kayu Guam Trantang Langit  *Scorodocarpus androgynus* (L.) Merr.  Scorodocarpus Olacaceae  Reproduce breast milk  Leaf

55. Karloompi  *Schefleria actinophylla* (Endl.) Harms  Schefleria Araliaceae  Diarrhoea *(membocor)*, diarrhea  Leaf, bark

56. Kayu Haro Teluncur Klakai  *Shorea koordersii* Brain-Dis  Shorea Dipterocarpaeae  Smallpox *(lambai)*  Ribber, root

57. Terung Bomban Teluncur  *Solanum ferox* (L.)  Solanum Solanaceae  Toothache  Root

58. Menterung  *Strombosia ceylanica*  Strombosia Olacaceae  Abdominal  Bark
Types of medicinal plants found in the dominance by the family Zingiberaceae is seven kinds of medicinal plants with the percentage of 9.59% (Table 2). The family of Zingiberaceae generally has aromatic compounds that characterize each type in its utilization by local people [13]. Types of plants in the Family such as *Zingiber officinale* Rosc., *Achasma coccineum*, and *Curcuma domestica* is a potential plant is used as a medicinal plant and is found as well as in cultivated in the courtyard of the community Dayak [14, 9, 15].
Figure 2. Species medicinal plants of distribution within the identified familia in Dayak Tomun in the Lopus Village of Lamandau Regency Central Kalimantan

The biodiversity of plants parts, preparation, and presentation of the medicinal plants

The observations obtained have done that part leaves of plant organs, many used as a medicinal herb in traditional Dayak community Tomun in the village of Lopus. As much as 36.36% of 38 kinds of medicinal plants are used (Figure 3).

Head in the manufacture of a medicinal herb in traditional Dayak Tomun society many do with boiling. The process of boiling on a Dayak Tomun society obtained as much as 50% (Figure 4 a) The process of boiling one common effort undertaken by the community in traditional medicine [16]. The technique of boiling carried out because it would be more effective to bioactive compounds so that spending will maintain the benefits of a more lasting potion [17].

Results in preparation for the manufacture of medicinal plant herb is consumed with how to drink the amount of 41.10% (Figure 4 b). The consumption of drugs by the way drunk will give you the benefits of a more effective through absorption in the digestive system and streamed into the bloodstream [18] in addition to the Dayak Tomun in the Lamandau lots using the process taken in the consumption of medicinal herb, in Dayak Kendayan, Daro, Bukat, and Iban in West Kalimantan, presenting in a way taken by society to treat disease fever or malaria [8].
Figure 3. The amount of use of an organ or part of the medicinal plant's Dayak Tomun society in the Lopus Village

Figure 4. The process of composition materials type of medicinal plants (a) preparation of medicinal plants (b) presentation of medicinal plants

Based on the results of the research of the process of inventory of the utilization of different types of Dayak Tomun society in medicinal plants retrieved that logging type medicinal plants, as well as its utilization, need to be done. Traditional medicine in Dayak Tomun has a unique relationship with the culture of the people. Knowledge of a specific type of plants used as medicine is based on the results of the interaction of humans with the environment. Another reason the importance of digging about logging type of medicinal plants is the abundance of the variety of diseases afflicting the community, making the odds of the existence of the opportunity to seek other types of medicinal plants.

Also, the utilization of medicinal plants by the Dayak Tomun society in the Lopus Villages can benefit regarding the economy if society can offer it wisely and well and by the local wisdom of the community. Such forest, as well as plant species contained in it have the values important to the community as part of the cultural identity of the Dayak Tomun society.

4. Conclusion
Results of the study showed the Dayak Tomun society in the Lopus Village know and utilized as many as 73 species of medicinal plants which are composed of 69 genera and 43 families. The group, most types of medicinal plants found on the family Zingiberaceae, is seven species of medicinal plants with a percentage of 9.59%. Part of the leaf on a whole lot of mixed types of medicinal plants as a medicinal herb in traditional is the percentage of 38.38%. The preparation of a medicinal herb in traditional Dayak Tomun much done by the method of boiling as much as 50% and results of the consumed to drink as much as 41.10%. Utilization of medicinal plants in Tomun in the village of Dayak society Lopus describes the level of interaction between society and the forest for their life.

Acknowledgments
The author gratitude to the Government in Lamandau Regency for supporting and providing scholarships for postgraduate. The author also thanks shaman and local respondents shaman and local respondents of Dayak Tomun in Lopus Village for help in the study site. Specifically, we thank Mr. Yohanes, and Mr. Martinus representing villagers of Dayak Tomun for giving us permission to research in Lopus Village.

References
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by Eka Santoso
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View the article online for updates and enhancements.
Inventory and biodiversity medicinal plants of dayak tomun society in lopus village Lamandau regency central Kalimantan

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Corresponding author: ekaandy36@gmail.com

Abstract. Dayak Tomun was one of Dayak tribe lived in the area of Lamandau Regency of Central Kalimantan. Knowledge of medicinal plants of Dayak Tomun society retrieved from ancestral knowledge or their ancestors. The absence of documentation from the study of the knowledge of medicinal plants, then the Dayak Tomun to do Ethnobotany studies. This research aim was examined deeper knowledge and utilization of Dayak Tomun society on the medicinal plant. The method used was the semi-structured interview and participatory observations involving the six key informants of the profession as a shaman. Results of the study were found that 73 species and 69 genera, 43 family medicinal plants with the dominant family (9.59%) were the Zingiberaceae. Part of the medicinal plants that have most frequencies used by Dayak community Tomun is a leaf (38.36%), mixed with the boiled way (50%) and consumed with the drink (41.10%). The tradition of processing and utilization of medicinal plants by the Dayak Tomun society is important to apply and further preserved, so the local wisdom of the traditional medicine will remain awake.

1. Introduction

Indonesia is a country that has a diversity of plants as much as 9600 plants which some 400 tribes in Indonesia utilization plants. Indonesia has one of the largest of the tribe biodiversity from the entire country from Sabang until Merauke. Tribes in Indonesia depend on the natural resources in the life of a day-day [1]. One of the regions in Indonesia that has the diversity of tribal communities is the Isles of Borneo.

Borneo has biodiversity plants on forest vegetation in abundance. The number of potential plants to serve as a source of drugs. Many societies are living in Kalimantan forest area that the harnesses her everyday plants to treat disease [2]. One of the Kalimantan provinces has an abundance of plant medicines are potentially Central Kalimantan.

Central Kalimantan is an area that has the potential to support plants biodiversity of traditional community knowledge. Utilization of plant community characteristics makes the Dayak tribe in Borneo [3]. Local communities in Central Kalimantan has a wide utilization of plants for everyday life, especially for local communities living in forest areas [4]. The tribe that settled lives come within the forests of Central Kalimantan, one of which is the Dayak Tomun.

Dayak Tomun is the community's traditional Dayak of Borneo settled on the forest area in the region of Central Borneo Lamandau Regency. Dayak Tomun society has local knowledge of the
natural environment, such as the utilization of herbs for medicinal [5]. Dayak Tomun society has local knowledge inherited by the ancestors of hereditary, the development of the times will be reduced. This is because of a lot of the next generation who are affected by the modernization culture [6].

Local knowledge in the utilization of medicinal plants on a Dayak Tomun society in the Lamandau has never been examined, documentation and inventoried. The thing that makes the local knowledge will disappear. Therefore, activities regarding medicinal plants inventoried in Dayak Tomun society especially in the Lopus Village should be examined, so that the hope retrieved database and knowledge regarding the types of plants that can be used as medicinal plants.

2. Method and Material

2.1. Study area
Research conducted on Lopus Villages in Delang District, Lamandau Regency of Central Kalimantan. The process of researching January-March 2018. In the geographical location is set on research on latitude 1 ° 37′ 56.90 ''S and longitude 111 ° 2′ 24.29 ''E (Figure 1).

2.2. Data collection
The process to get the data of the research done through the activities of collected type and number of inventory. The data will be retrieved by first determining the key informants from the Dayak Tomun society in the village of Lopus. Key informants were determined by purposive sampling method. Key Informant of Dayak Tomun society has criteria which are believed as one of the treatments in the Tomun Dayak. Key informant retrieved as many as seven shamans (moulup or poulap). Logging activities and an inventory of medicinal plants were done with a semi-structured interview [7] and the participatory exploration [8] by involving key informant.

2.3. Data analysis
The results of the observation data collection will be analyzed in qualitative descriptive by identifying, determination and an inventory of the types of medicinal plants are used. The overall result will be in tabulation, presentation and discussed by comparing the existing literature.
3. Results and Discussion

3.1 The diversity of types of medicinal plants

Based on the observations obtained as many as 73 plant species with 69 genera and 43 species of that family are used within the Dayak Tomun society in the Lopus Villages (table 1). These kinds of medicinal plants found in the area of the Dayak Tomun society in the village of Lopus can be said to overflow because of the many plants that could potentially be discovered as a cure.

Types of plants local Dayak community Tomun obtained also have the same types of plants are utilized and found on the other Dayak communities. On Dayak Kendayan society, Daro’, Bukat and Iban in West Kalimantan and South Kalimantan Dayak medicinal plants the same type utilized by the Dayak Tomun society encompasses plants *Tinospora crispa* L., *Kaempferia galanga*, *Morinda citrifolia* L., *Justicia gendarussa*, *Lansium domesticum*, *Cárica papaya*, *Ageratum conyzoides*, *Psidium guajava* L., and *Eurycoma longifolia* Jack [9, 10].

On medicinal plants that are used in the general Dayak Tomun in the Lopus Village also found the kinds of plants that enter into the category of a red list of the IUCN and CITES, among others, *Eusideroxylon zwageri* Teijsm. & Binn. And *Eurycoma longifolia* Jack. Kayu ulin plant (*Eusideroxylon zwageri* Teijsm. & Binn.) in the entry in the category of vulnerable [11], while pasak bumi (*Eurycoma longifolia* Jack) fall into the category of threatened plants [12].

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<td>Acorus</td>
<td>Araceae</td>
<td>Abdominal diseases, headache, witchcraft</td>
<td>Leaf, stem</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Common Name</td>
<td>Family</td>
<td>Uses</td>
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<td>Kaning Kambing</td>
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<td>Asteraceae</td>
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<td>9.</td>
<td>Teras Mentawai</td>
<td>Artocarpus anisophyllus Miq.</td>
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<td>Kayu Walah</td>
<td>Bromheadia finlaysoniana (tindley) Miq.</td>
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<td>14.</td>
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<td>Pepaya Honah</td>
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<td>Caricaceae</td>
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<td>17.</td>
<td>Bura</td>
<td>Chromolaena odorata (L.) R.M.King &amp; H.Rob</td>
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<td>18.</td>
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<td>Verbenaceae</td>
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<td>19.</td>
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<td>Coniogramme fraxinea (D. Don) Diels</td>
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<td>29.</td>
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<td>32.</td>
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<td>33.</td>
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<td>Ficus stricata (Miq.) Miq.</td>
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<td>Geumnia pentandra (Roxb.) Merr.</td>
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<td>English Name</td>
<td>Family</td>
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<td><em>Monstera adansonii</em> Schott</td>
<td>Monstera Araceae</td>
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<td><em>Morinda citrifolia</em> L.</td>
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<td>46</td>
<td>Pisang Raya</td>
<td><em>Musa acuminata</em> Colla</td>
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<td><em>Myrmecodia taberosa</em> Jack</td>
<td>Myrmecodia Rubiaceae</td>
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<td>Kayu Kumis</td>
<td><em>Orthosiphon aristatus</em> (Blume) Miq.</td>
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<td>Pohon Bobok</td>
<td><em>Phrynium villosulum</em> Miq.</td>
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<td><em>Pernandra rostrata</em> M. P. Nayar</td>
<td>Pernandra Melastomaceae</td>
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<td><em>Pycnanthena cauliflora</em> (Miers.) Diels</td>
<td>Pycnanthena Menispermacae</td>
<td>Headache, sawan <em>(kepahuan)</em> people died Reproduce breast milk Leaf</td>
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<td>Kayu Guam</td>
<td><em>Sauropus androgynus</em> (L.) Merr.</td>
<td>Sauropus Phyllantheaceae</td>
<td>Diarrhoea <em>(membocor)</em>, diarrrhea Leaf, bark</td>
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<td><em>Schefflera actinophylla</em> (Endl.) Harms</td>
<td>Schefflera Araliaceae</td>
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<td>Shorea Dipterocarpacae</td>
<td>Smallpox <em>(lumbat)</em> Root</td>
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<td><em>Solanum ferox</em> (L.)</td>
<td>Solanum Solanaceae</td>
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<td>Putur Ali</td>
<td>Tinospora crispa (L.)</td>
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<td>Hook. F. &amp; Th.</td>
<td>Menispermaeae</td>
<td>Stem</td>
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<td>69</td>
<td>Balaban</td>
<td>Tristaniopsis whiteana</td>
<td>Tristaniopsis</td>
<td>Sawan (kepahuanu)</td>
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<td></td>
<td></td>
<td>(Griff.) Peter G. Wilson &amp; J. T.</td>
<td>Myrtaceae</td>
<td>people died, measles diseases (tombo balaban)</td>
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<td>Jerangau</td>
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<td>Rosc.</td>
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<td>Rhizome</td>
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<td>72</td>
<td>Kunits</td>
<td>Zingiber zerumbet (L.)</td>
<td>Zingiberaceae</td>
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<td>Hantu</td>
<td>Roscoe ex Sm.</td>
<td></td>
<td>Root</td>
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<td>Indagandi</td>
<td>Zizyphus calophylla</td>
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<td>Wall.</td>
<td>Rhamnaeace</td>
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</table>

Types of medicinal plants found in the dominance by the family Zingiberaceae is seven kinds of medicinal plants with the percentage of 9.59% (Table 2). The family of Zingiberaceae generally has aromatic compounds that characterize each type in its utilization by local people [13]. Types of plants in the Family such as *Zingiber officinale* Rosc., *Achasma cocchineum*, and *Curcuma domestica* is a potential plant is used as a medicinal plant and is found as well as in cultivated in the courtyard of the community Dayak [14, 9, 15].
3.2 The biodiversity of plants parts, preparation, and presentation of the medicinal plants

The observations obtained have done that part leaves of plant organs, many used as a medicinal herb in traditional Dayak community Tomun in the village of Lopus. As much as 36.36% of 38 kinds of medicinal plants are used (Figure 3).

Head in the manufacture of a medicinal herb in traditional Dayak Tomun society many do with boiling. The process of boiling on a Dayak Tomun society obtained as much as 50% (Figure 4 a) The process of boiling one common effort undertaken by the community in traditional medicine [16]. The technique of boiling carried out because it would be more effective to bioactive compounds so that spending will maintain the benefits of a more lasting potion [17].

Results in preparation for the manufacture of medicinal plant herb is consumed with how to drink the amount of 41.10% (Figure 4 b). The consumption of drugs by the way drunk will give you the benefits of a more effective through absorption in the digestive system and streamed into the bloodstream [18] in addition to the Dayak Tomun in the Lamandau lots using the process taken in the consumption of medicinal herb, in Dayak Kendayan, Daro, Bukat, and Iban in West Kalimantan, presenting in a way taken by society to treat disease fever or malaria [8].
Figure 3. The amount of use of an organ or part of the medicinal plant's Dayak Tomun society in the Lopus Village.

<table>
<thead>
<tr>
<th>Preparation</th>
<th>Root</th>
<th>Stem</th>
<th>Fruit</th>
<th>Leaf</th>
<th>Bark</th>
<th>Tuber</th>
<th>Rhizome</th>
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<td>Dried</td>
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<tr>
<td>Cut</td>
<td>2%</td>
<td></td>
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<td></td>
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<tr>
<td>Marinated</td>
<td>2%</td>
<td></td>
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<tr>
<td>Coiled</td>
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<td></td>
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<tr>
<td>Chewed</td>
<td>2%</td>
<td></td>
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<tr>
<td>Be further eroded</td>
<td>5%</td>
<td></td>
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<td></td>
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<tr>
<td>To absorb</td>
<td>7%</td>
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<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Burned</td>
<td>2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dyed</td>
<td>5%</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pounded</td>
<td></td>
<td></td>
<td>17%</td>
<td></td>
<td></td>
<td></td>
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<td>5%</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Boiled</td>
<td></td>
<td></td>
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</tr>
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<td>Preparation</td>
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(a)

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<th>Root</th>
<th>Stem</th>
<th>Fruit</th>
<th>Leaf</th>
<th>Bark</th>
<th>Tuber</th>
<th>Rhizome</th>
<th>Rubber</th>
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<tr>
<td>Gargle</td>
<td>4.11%</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Tied up</td>
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(b)

Figure 4. The process of composition materials type of medicinal plants (a) preparation of medicinal plants (b) presentation of medicinal plants.

Based on the results of the research of the process of inventory of the utilization of different types of Dayak Tomun society in medicinal plants retrieved that logging type medicinal plants, as well as its utilization, need to be done. Traditional medicine in Dayak Tomun has a unique relationship with the culture of the people. Knowledge of a specific type of plants used as medicine is based on the results of the interaction of humans with the environment. Another reason the importance of digging about logging type of medicinal plants is the abundance of the variety of diseases afflicting the community, making the odds of the existence of the opportunity to seek other types of medicinal plants.

Also, the utilization of medicinal plants by the Dayak Tomum society in the Lopus Villages can benefit regarding the economy if society can offer it wisely and well and by the local wisdom of the community. Such forest, as well as plant species contained in it have the values important to the community as part of the cultural identity of the Dayak Tomum society.

4. Conclusion
Results of the study showed the Dayak Tomun society in the Lopus Village know and utilized as many as 73 species of medicinal plants which are composed of 69 genera and 43 families. The group, most types of medicinal plants found on the family Zingiberaceae, is seven species of medicinal plants with a percentage of 9.59%. Part of the leaf on a whole lot of mixed types of medicinal plants as a medicinal herb in traditional is the percentage of 38.3%. The preparation of a medicinal herb in traditional Dayak Tomun much done by the method of boiling as much as 50% and results of the consumed to drink as much as 41.10%. Utilization of medicinal plants in Tomun in the village of Dayak society Lopus describes the level of interaction between society and the forest for their life.

Acknowledgments
The author gratitude to the Government in Lamandau Regency for supporting and providing scholarships for postgraduate. The author also thanks shaman and local respondents shaman and local respondents of Dayak Tomun in Lopus Village for help in the study site. Specifically, we thank Mr. Yohanes, and Mr. Martinus representing villagers of Dayak Tomun for giving us permission to research in Lopus Village.

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