

Medicinal Plants Used by Dayak Kanayatn Traditional Healers in Tonang Village Sengah Temila District Landak Regency

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Abstract: Plants have an essential role in people's lives because of their benefits and properties, such as for medicinal properties. In Landak District, only limited studies on medicinal plant had been carried out. This study analyzes the species of medicinal plants used by the Dayak Kanayatn tribal traditional healers in Tonang Village, Sengah Temila District, Landak Regency. The sampling used the snowball sampling technique. The results found that traditional healers of Dayak Kanayatn in Tonang Village used a total of 60 species belong to 36 families. The most utilized families (8.47%) are Zingiberaceae and Asteraceae. The extensive use of plant habitus is herbs (41,67%). Leaves are the most dominant plant part used (44.78%), while the highest processing method was boiled (39.74%). The highest form of use was drinking (38.67%), the most common location of plants was in the yard (67.74%), the highest plant status is cultivated (52%), and the highest form of the potion is in the form of a mixture (72%). The result shows that the traditional healers in the Dayak Kanayatn community in Tonang Village, Sengah Temila District, Landak Regency, still use medicinal plants to overcome health problems and treat disease.

Keywords: Dayak Kanayatn, medicinal plant, traditional healers, Tonang village

Introduction

Plants have an essential role in people's lives due to their benefits and properties, including for nutritious drugs. West Kalimantan has various types of plants used by the community since ancient times, especially by the Dayak tribe, the original tribe of West Kalimantan (Riadi *et al.* 2019). The traditional medication practicing in the Dayak tribe conducted by their traditional healers. One of the Dayak tribe that still use plants as traditional medicine is the Kanayatn. This tribe widely distributed in West Kalimantan especially in regencies of Mempawah, Bengkayang, Sanggau, Ketapang, and Landak (Rahmawati 2012).

Landak Regency is one of the area that is occupied by the Dayak Kanayatn tribe. In Landak District, several studies had been carried out related to the ethnobotany of medicinal plants. Ferdy *et al.* (2017) identified 44 species of medicinal plant (32 families) in the Village Ara

wood, Menyuke District, Landak Regency. The Mingga *et al.* (2019), among the Dayak Ahe community in Raba Village, Menjalin District, Landak Regency, reported a total of 39 medicinal plants species from 30 families used this community. Other medicinal plant study in Kanayatn tribe were conducted by Fadillah *et al.* (2015) that obtained 29 species (20 families) of medicinal plants used by the Kanayatn Dayak tribe in Ambawang Village, Kubu District, Kubu Raya Regency. Efremila *et al.* (2015) also reported the medicinal plant study in Landak Regency, especially Kayu Tanam Village, Mandor district. Their study identified 50 species (32 families).

In Tonang Village, among the community, there are several traditional healers that are still practicing traditional medication. These traditional healers using the plant to treat diseases. However, there is no study on medicinal plant in this village. Therefore, it is necessary to conduct a research in order to

document these traditional healer's knowledge of medicinal plants; thus, their experience is maintained. This study aims to analyze the types and levels of medicinal plants used by the Dayak Kanayatn traditional healers in Tonang Village, Sengah Temila District, Landak Regency.

Materials and Method

Time and site of research

This research had been conducted in Tonang village, Sengah Temila District, Landak Regency from June to August 2020. Starting from the data collection process, identifying medicinal plants species, and data analysis.

Equipment

The equipment used in this study are a list of the questioner for selected respondents, a camera for field documentation, a voice recorder to record the interview conversations, a computer, the medicinal plant identification books (Badrunasar and Santoso 2016; Baihaqi *et al.* 2017).

Data Collection

Data were collected by using interviews and observations. The respondents were selected using the snowball sampling technique. We started by interviewing the village head and elder community, thus leads us to Kanayatn traditional healers in their village. The selected traditional healers must fulfill the criteria like having medicinal plant knowledge and use it in their traditional medication.

Data Analysis

The data obtained were displayed in tables and graphics and analyzed descriptively. The data includes medicinal plant names (vernacular and scientific names), families, habitus, plant status, location, efficacy, plant part used, processing and usage method, duration of uses, and frequency of use.

Result and Discussion

In this study, a total of six traditional healers of Dayak Kanayatn in Tonang village were interviewed. They are classified into general traditional healers, birth assistants, and fracture specialists. In total, there are 60 species medicinal

plant belong to 36 families used by these traditional healers. However, one species is not identified yet its scientific name (Table 1).

Plant Utilization Based on Plant Family

The traditional healers of Dayak Kanayatn in Tonang village use various species of medicinal plants in their medication. A total of 60 plant species (36 families) in different habitus are used in treating the diseases of the Dayak Kanayatn community in this village.

Zingiberaceae and Asteraceae's families are the most used by the traditional healer (Fig. 1). In many reports, we found that Zingiberaceae and Asteraceae are used in traditional medication of many communities (Yusro *et al.* 2020; Jadid *et al.* 2019; Rania *et al.* 2019; Nahdi *et al.* 2016.). These two families are the most widely used families in Asia, especially in the tropic region (Kumar *et al.*, 2013).

Zingiberaceae and Asteraceae have long been known for their use as traditional medicine, and they are recorded in Ayurvedic medicine (Kumar *et al.*, 2013). In traditional medication, various parts of Zingiberaceae's plant are used. Plants belonging to Zingiberaceae are known to possess active compounds and essential oils that benefit human life.

As the second famous family, Asteraceae is known for its biological activities (Michel *et al.* 2020). Several studies reported the active compound of this family, namely polyphenols, flavonoids, and diterpenoids (Koc *et al.* 2014).

Plant Utilization Based on Plant Habitus

There are several types of plants used by traditional healers of Dayak Kanayatn in Tonang village. The most extensive use is herbaceous (41.67%), while the lowest is lianas (3.33%) (Fig. 2).

Tabel 1. The documented knowledge of medicinal plants used by traditional healers of Dayak Kanayatn in Tonang village

No	Family	Botanical name	Vernacular Name	Indications	Plant part usage	Processing Method	Utilization Method	Habitus	Cultivated/ Wild	Plant location
1	Acanthaceae	<i>Clinacanthus nutans</i> L	Kakamek	Broken bone	Leaves	Pounded	Patched	Shrub	Wild	Yard
2	Acanthaceae	<i>Graptophyllum pictum</i> L	Lingkudikng	Menstruation, post- maternal treatment, fertilizing the womb	Leaves and roots	Boiled	Drunk	Shrub	Cultivated	Yard
3	Acanthaceae	<i>Justicia gendarussa</i> Burm	Tuba lonyekng	Broken bone and inflammation	Leaves	Pounded and burnt	Patched and rubbed	Herb	Wild	Yard
4	Alliaceae	<i>Allium sativum</i> L	Bawang putih	Sprain, carbuncle, and body pain	Bulbs	Pounded	Patched	Herb	Cultivated	Market
5	Amaryllidaceae	<i>Crynum asiaticum</i> L	Bawang bombai	Sprain	Bulbs	Pounded	Patched	Herb	Cultivated	Yard
6	Amaranthaceae	<i>Amaranthus sp.</i>	Bayam	Post-maternal treatment	Leaves	Boiled	Eaten	Herb	Cultivated	Market
7	Amaranthaceae	<i>Celosia cristata</i>	Bunga manok	Inflammation	Leaves	Pounded	Patched	Herb	Wild	Yard
8	Annonaceae	<i>Annona mucirata</i> L	Nangka' balanda	Fever, gastric	Leaves and roots	Squeezed and brewed	Drunk	Shrub	Cultivated	Yard
9	Anisophylleaceae	<i>Anisophyllea disticha</i>	Sumiang	Diarrhea	Leaves	Direct used	Eaten	Shrub	Wild	Forest
10	Apiaceae	<i>Coriandrum sativum</i>	Katumbar	Cholesterol	Fruits	Boiled	Drunk	Bush	Cultivated	Market
11	Apiaceae	<i>Daucus carota</i> L	Wortel	Eye treatment	Fruits	Shredded	Eaten	Bush	Cultivated	Market
12	Araceae	<i>Colocasia esculenta</i>	Be'a	Wound	Leaves	Chopped	Patched	Herb	Wild	Yard
13	Arecaceae	<i>Areca catachu</i> L	Pinang	Broken bone	Midrib	Pounded	Patched	Tree	Cultivated	Yard
14	Araliaceae	<i>Polyscias scutellaria</i>	Kambang mangkok	Inflammation	Leaves	Pounded and burnt	Rubbed	Bush	Cultivated	Yard

No	Family	Botanical name	Vernacular Name	Indications	Plant part usage	Processing Method	Utilization Method	Habitus	Cultivated/ Wild	Plant location
15	Asteraceae	<i>Chromolaena odorata</i> L	Carone	Stomachache, tonic, and fever	Roots and leaves	Boiled, and squeezed	Drunk and compressed	Shrub	Wild	Yard
16	Asteraceae	<i>Elephantopus scaber</i> L	Jam teo	Fever, dysentery, diarrhea	Leaves	Boiled	Drunk	Bush	Cultivated	Yard
17	Asteraceae	<i>Gymnanthemum amygdalinum</i>	Panyambung nyawa	Fever, hypertension	Leaves	Boiled	Compressed and drunk	Shrub	Cultivated	Yard
18	Asteraceae	<i>Blumea balsamifera</i>	Kimabo	Post-maternal treatment	Roots	Boiled	Drunk	Shrub	Wild	Forest
19	Asteraceae	<i>Artemisia vulgaris</i>	Sasunge	Post-maternal treatment	Leaves	Boiled	Drunk	Herb	Cultivated	Yard
20	Aspleniaceae	<i>Asplenium nidus</i>	Paku' sanah	Broken bone, cramp	Leaves	Pounded and boiled	Patched and eaten	Bush	Wild	Forest
21	Blechnaceae	<i>Blechnum orientale</i>	Paku' mamuraja	Carbuncle	Shoots	Pounded	Patched	Herb	Wild	Forest
22	Crassulaceae	<i>Kalanchoe pinnata</i>	Paddingin	Fever	Leaves	Boiled	Compressed	Herb	Cultivated	Yard
23	Dilleniaceae	<i>Dillenia indica</i> L	Abuatn	Inflammation	Leaves	Pounded and burnt	Rubbed	Shrub	Wild	Forest
24	Euphorbiaceae	<i>Phyllanthus urinaria</i> L	Antidur	Fertilizing the womb	Roots	Boiled	Drunk	Herb	Wild	Yard
25	Euphorbiaceae	<i>Macaranga sp.</i>	Limpe'et	Inflammation	Leaves	Pounded and burnt	Rubbed	Shrub	Wild	Yard
26	Euphorbiaceae	<i>Manihot utilisima</i> Pohl	Ubi	Anemia	Leaves	Boiled	Eaten	Shrub	Cultivated	Yard
27	Fabaceae	<i>Vigna radiata</i>	Kacambah	Fertilizing the womb	Shoots	Boiled	Eaten	Bush	Cultivated	Market
28	Fabaceae	<i>Cajanus cajan</i>	Kacang bue	Fertilizing the womb	Roots	Boiled	Drunk	Herb	Cultivated	Yard
29	Gleicheniaceae	<i>Gleichenia linearis</i>	Taboyo	Carbuncle	Shoots	Pounded	Patched	Bush	Wild	Forest
30	Lamiaceae	<i>Plechthranthus scutellarioides</i>	Ati-ati	Gastric	Leaves	Brewed	Drunk	Herb	Cultivated	Yard

No	Family	Botanical name	Vernacular Name	Indications	Plant part usage	Processing Method	Utilization Method	Habitus	Cultivated/ Wild	Plant location
31	Liliaceae	<i>Eleutherine americana</i> Merr	Bawang lama	Breast cancer, carbuncle, and hypertension	Bulbs	Pounded and Boiled	Patched and drunk	Herb	Cultivated	Yard
32	Loranthaceae	<i>Scurrula atropurpurea</i>	Korouncit	Broken bone	Roots	Pounded	Patched	Shrub	Wild	Yard
33	Lomariopsidaceae	<i>Nephrolepis biserrata</i>	Paku' uban	Remove scars	Shoots	Pounded	Patched	Herb	Wild	Yard
34	Malvaceae	<i>Abelmoschus esculentus</i> L	Kacang tanuk	Constipation	Fruits	Boiled	Eaten	Bush	Cultivated	Yard
35	Malvaceae	<i>Hibiscus rosa-sinensis</i> L	Kembang sepatu	Carbuncle	Leaves	Pounded	Patched	Shrub	Cultivated	Yard
36	Melastomaceae	<i>Melastoma candidum</i>	Lingkodok	Diarrhea	Leaves	Direct used and boiled	Eaten and drunk	Herb	Wild	Yard
37	Meliaceae	<i>Melia azedarach</i>	Bambali	Broken bone	Stem	Direct used	Patched	Tree	Wild	Forest
38	Myrtaceae	<i>Psidium guajava</i> L	Jamu karas	Diarrhea	Leaves	Boiled	Drunk	Shrub	Wild	Yard
39	Myrtaceae	<i>Syzygium polyanthum</i>	Salam	Cholesterol, hypertension	Leaves and roots	Boiled	Drunk	Shrub	Cultivated	Yard
40	Myrtaceae	<i>Syzygium zeylanicum</i>	Ubah	Breast cancer, carbuncle	Roots	Pounded	Patched	Shrub	Wild	Forest
41	Orchidaceae	<i>Phalaenopsis amabilis</i>	Anggrek putih	Smallpox	Leaves	Pounded	Patched	Bush	Wild	Forest
42	Palmaceae	<i>Cocos nucifera</i>	Kalapa	Gastric	Roots	Brewed	Drunk	Tree	Cultivated	Yard
43	Piperaceae	<i>Piper bettle</i> L	Karakek	Vaginal discharge, cough, allergy	Leaves	Boiled and burnt	Bath, drunk and rubbed	Liana	Wild	Yard
44	Piperaceae	<i>Piper nigrum</i> L	Sahakng	Post-maternal treatment	Fruits	Boiled	Drunk	Liana	Cultivated	Garden
45	Poaceae	<i>Bambusa vulgaris</i> S	Buluh bala	Lumbago	Roots and midrib	Boiled	Drunk	Shrub	Wild	Forest
46	Poaceae	<i>Imperata cylindrica</i> L	Padakng	Fertilizing the womb	Roots	Boiled	Drunk	Herb	Wild	Yard
47	Poaceae	<i>Coix lacryma-Jobi</i>	Anyalik	Breast cancer	Roots	Pounded	Patched	Herb	Wild	Yard

No	Family	Botanical name	Vernacular Name	Indications	Plant part usage	Processing Method	Utilization Method	Habitus	Cultivated/ Wild	Plant location
48	Poaceae	<i>Cymbopogon citratus</i>	Sare	Flatulence, tonic, cholesterol	Stem	Boiled	Drunk	Herb	Cultivated	Yard
49	Rutaceae	<i>Citrus amblycarpa</i>	Limo sambal	Carbuncle	Leaves	Pounded	Patched	Shrub	Cultivated	Yard
50	Salicaceae	<i>Flacourtia rukam</i>	Rukapm	Carbuncle, hypertension	Leaves and Roots	Direct used and boiled	Eaten and Drunk	Tree	Wild	Forest
51	Sapindaceae	<i>Nephelium lappaceum</i> L	Rambutan	Gastric	Roots	Brew	Drunk	Tree	Cultivated	Yard
52	Solanaceae	<i>Physalis angulata</i> L	Lalatup	Dysentery, Gastric, hypertension	Roots	Boiled and brewed	Drunk	Herb	Wild	Yard
53	Solanaceae	<i>Solanum torvum</i>	Marajakng	Dental treatment	Roots	Boiled	Drunk	Shrub	Wild	Yard
54	Verbenaceae	<i>Vitex pinnata</i>	Laban	Gastric	Leaves	Direct used, boiled, and brewed	Eaten and Drunk	Tree	Wild	Forest
55	Zingiberaceae	<i>Boesenbergia pandurata</i>	Antamu kunci	Sprain, body pain	Rhizomes	Pounded	Patched	Herb	Cultivated	Yard
56	Zingiberaceae	<i>Curcuma domestica</i>	Unyit	Breast cancer, vaginal discharge	Rhizomes	Pounded and boiled	Patched and drunk	Herb	Cultivated	Yard
57	Zingiberaceae	<i>Curcuma zanthorrhiza</i> R	Temulawak	Breast cancer	Rhizomes	Pounded	Patched	Herb	Cultivated	Yard
58	Zingiberaceae	<i>Kaemferia galanga</i> L	Cakur	Fertilizing the womb, post-maternal treatment	Rhizomes and leaves	Boiled	Drunk	Herb	Cultivated	Yard
59	Zingiberaceae	<i>Zingiber officinale</i> Linn	Lahia' merah	Inflammation, Sprain, body pain, broken bone, post-maternal treatment, and tonic	Rhizomes	Pounded, burnt and boiled	Patched, rubbed, and drunk	Herb	Cultivated	Yard

No	Family	Botanical name	Vernacular Name	Indications	Plant part usage	Processing Method	Utilization Method	Habitus	Cultivated/ Wild	Plant location
60	-	-	Tiba'akng	Inflammation dan diarrhea	Leaves	Pounded and direct used	Patched and eaten	Tree	Wild	Forest

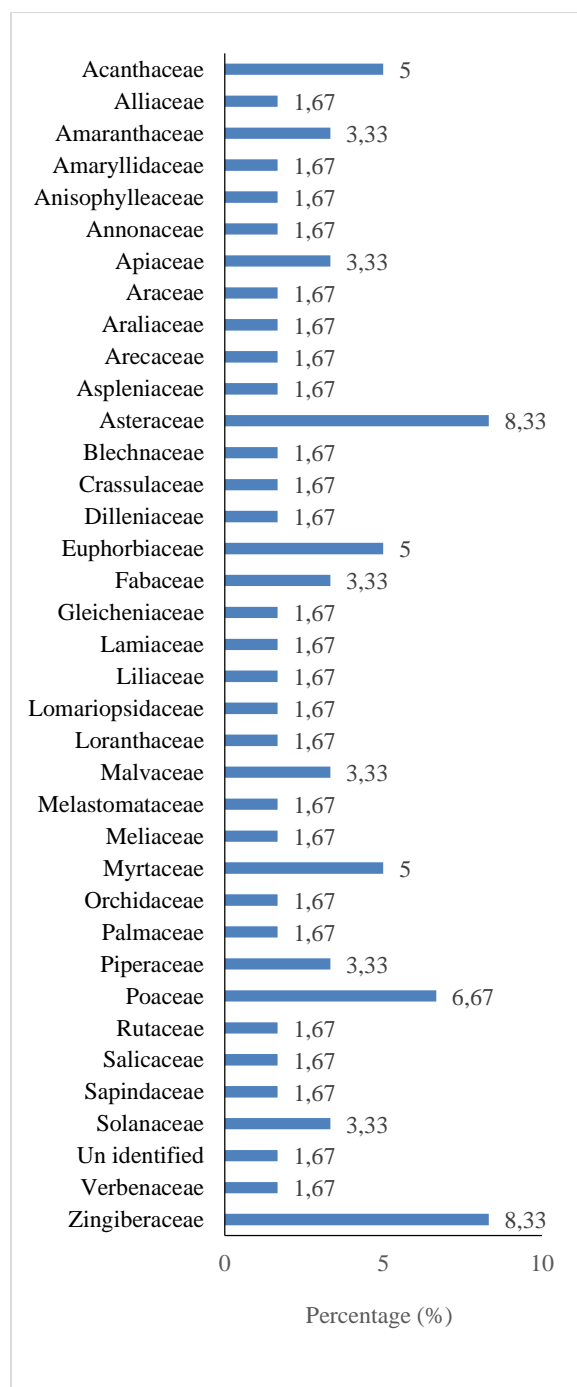


Figure 1. The Percentage of plant family used by traditional healers of Dayak Kanayatn in Tonang village

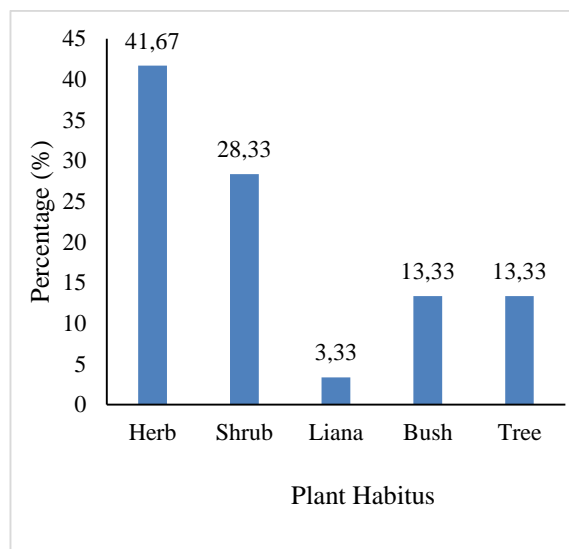


Figure 2. The percentage of plants habitus used by traditional healers of Dayak Kanayatn in Tonang village

Yusro *et al.* (2020) also reported that herb is the main habitus of the medicinal plant used by traditional healers in Merpak and Kebong villages. The extensive use of herb because they are commonly more found and grown in the yard, garden, and forest. The study of Mussarat *et al.* (2014) in the Indus River, Pakistan also showed that herb was commonly used for medicinal plant. Also, these plants contain many bioactive compounds; therefore, the local healer in this region utilizes them in many traditional remedies.

Medicinal Plant Part in Traditional Medicinal Treatment

The traditional healers of Dayak Kanayatn in Tonang village use various medicinal plant parts, namely rhizome, roots, fruit, leaves, midrib, shoots, and bulb. Figure 3 present the percentage of these plant part.

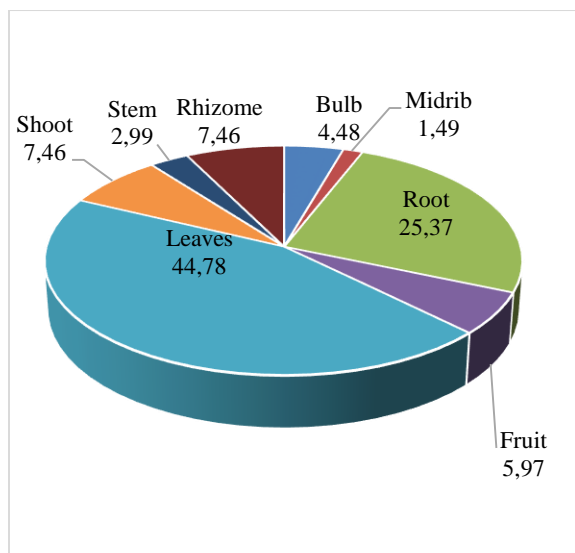


Figure 3. The percentage of plants part used by traditional healers of Dayak Kanayatn in Tonang village

In this study, we found that the highest use of plant part is the leaves. This study supported with the report of Yusro *et al.* (2020). In many studies, it was reported that leaves are used as a potion to treats diseases. In this village, the traditional healers of Dayak Kanayatn use leaves to treat ailments, bone fracture treatment, and post-maternal treatment.

Samoisy and Mahomoodally (2015) also reported the same result in the Island of Rodrigues of the Republic of Mauritius and Kadir *et al.* (2020) in the Chittagong Hills of Bangladesh. The leaves were almost widely used by people in those areas as medicinal ingredients. Leaves, one of the plant organs where photosynthetic activities take place, contain various active ingredients that can be used as medicine (Ullah *et al.* 2020).

Medicinal Plant Processing Method in Traditional Medicinal Treatment

We interviewed the traditional healers of Dayak Kanayatn in Tonang village about preparing the medicinal plants potion to treat the disease. The traditional healers in this village use several ways to prepare the medicinal plant potion (Fig. 4).

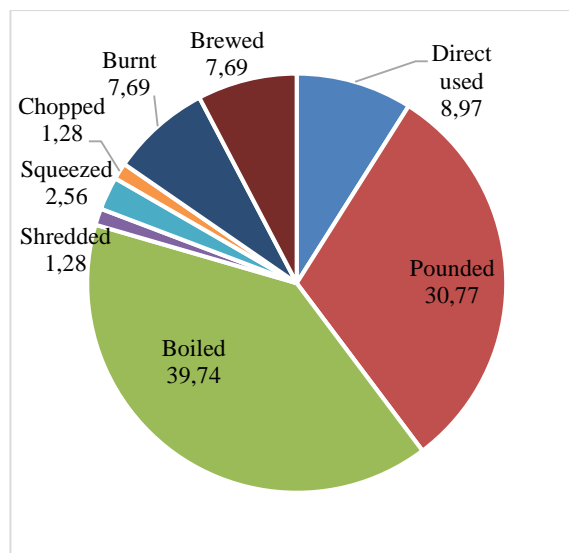


Figure 4. The percentage of processing method of medicinal plant used by traditional healers of Dayak Kanayatn in Tonang village

The preparation method they used is boiled, pounded, chopped, squeezed, shredded, burnt, and brewed. Some medicinal plants also directly (direct used). According to these traditional healers, most of the medicinal plant potion is made by boiling the plant (39,74%). Our previous report on traditional healers in Merpak and Kebong villages also found a similar result (Yusro *et al.* 2020).

In this study, most of the healers prepared the medicinal plant by boiling plant part because they believed it will have to have biological properties with a water solvent. This preparation method is similar to the practiced of traditional healers in the Indus river and Algeria (Mussarat *et al.* 2014; Taibi *et al.* 2020). When the medicinal plants are boiled, their active substances may quickly dilute. They believe that the patient will be cured soon after they drink the potion.

Medicinal Plant Utilization Method in Traditional Medicinal Treatment

In this study, we asked the traditional healers of Dayak Kanayatn their utilization method of medicinal plant potion. According to them, there are several methods in utilization the medicinal plant potion. These methods are

patched, rubbed, eaten, drunk, compressed, and bathed (Fig. 5).

The suggestion of the utilization method of the potion depends on the type of disease. Usually, a patient with an internal illness will be given the medicinal plant potion with the oral administration method, which can be eaten or drunk. In this village, most medicinal plant potion is administered with drunk (38.67%) and patched (32%) (Fig. 5).

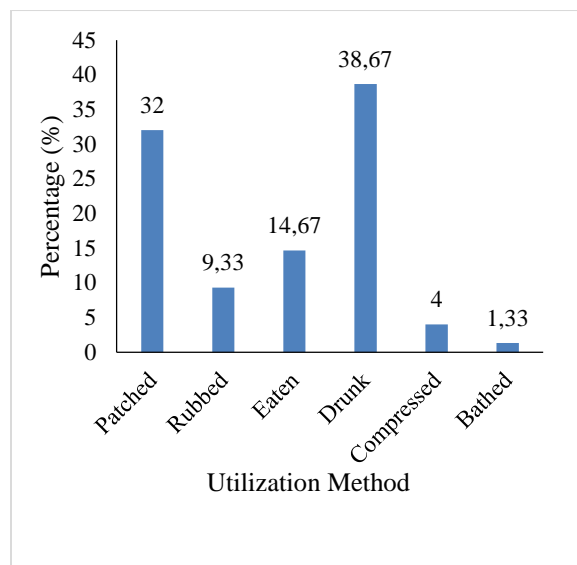


Figure 5. The percentage of utilization method of medicinal plant used by traditional healers of Dayak Kanayatn in Tonang village

This result resonance with our previous result in Mepak and Kebong villages, and traditional midwife in Kayong Utara, where the traditional medication practices by the traditional healers in those villages also prescribe the same administration method of medicinal plant potion to their patient (Yusro *et al.* 2020; Rania *et al.* 2019).

Medicinal Plant Harvested Location Used in Traditional Medicinal Treatment

Based on the interviews, we found a total of 4 locations the medicinal plants harvested, namely forest, garden, market, and yard (Fig. 6). In traditional medication, the healers prepare the medicinal potions. Some of the medicinal plants are taken from the forest near their village, in

their garden, and in the yard. Among these plants also can be find in the market near their village.

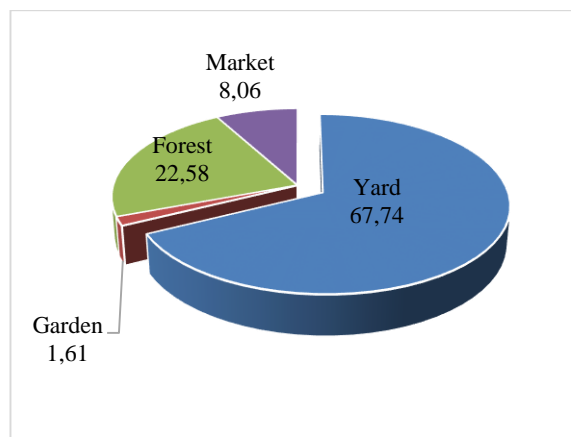


Figure 6. The percentage of harvested location of medicinal plant used by traditional healers of Dayak Kanayatn in Tonang village

The yard is the primary site where the traditional healers take the medicinal plant and use it in their conventional medication (67.74%). We assumed that this village's traditional healers already cultivate their medicinal plant used in their regular medication. Thus, they will able to harvest it quickly when needed. Although the yard is the primary site where they take the medicinal plant, the traditional healers also take plants from the forest for their remedies (22.58%).

Medicinal Plant Cultivation Status

Figure 7 shows that the traditional healer's plant in Tonang village are cultivated (52%). While the percentage of wild species is slightly lower than cultivated species.

During the interviews, the traditional healers explains that they cultivate the plants in the yard and in the garden. Therefore, they will be easy to take it if they need. Although most of their plants are cultivated, they still used the wild ones. Some of the plants also live in the wild. We assumed these plants are live in the forest or plant that easy to grow, thus they not yet try to cultivate it.

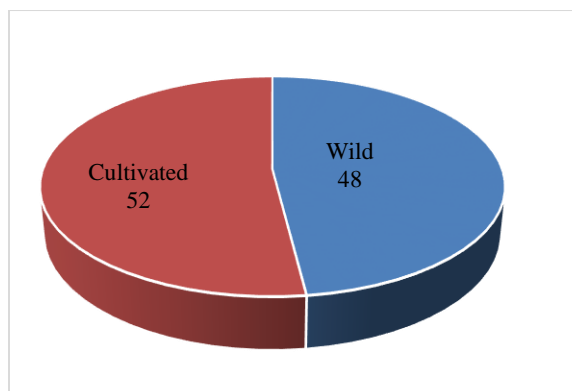


Figure 7. The percentage of medicinal plant cultivation status used by traditional healers of Dayak Kanayatn in Tonang village

Conclusion

In the Dayak community of Tonang Village, there are still traditional healers who practice conventional medication with the medicinal plant. The community uses this medication to treat various diseases and healthcare. It shows that the Dayak Kanayatn traditional knowledge on medicinal plants still maintained. They also conduct an effort to cultivate the plants used in their medication; thus, it prevents extinction.

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