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Original Research Paper

# Diversity of Medicinal Plants Used by Traditional Healers of Dayak Desa Tribe in the Villages of Kebong and Merpak, Sintang Regency

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**Abstract:** Dayak Desa is a sub-tribe of a large group of Dayak tribes in West Kalimantan. Within the tribal community, it is estimated that there are still several traditional healers (battra) practicing traditional medicine. This study aims to identify the existence of traditional healers from the Dayak Desa tribe in the villages of Kebong and Merpak, analyze the species of medicinal plants used by traditional healers of Dayak Desa and analyze the similarities/ differences in knowledge of medicinal plants possessed by traditional healers and the general communities in Kelam Permai Sub-district. This study used an in-depth interview method to traditional healers from the Dayak Desa tribe with questionnaire aids, which contains questions related to the species of medicinal plants used in their practice. Data analysis was in the form of many species of medicinal plants used by traditional healers, plant families, habitus and parts of plants used, methods of processing and use, location, and sources of medicinal plants taken. The results showed that in Kebong and Merpak villages, there were still four traditional healers practicing traditional medication and using 59 species of medicinal plants. There are 39 species of plants used by traditional healers and also used by the communities, while 20 species others only used by traditional healers. The highest use is found in the family of Poaceae (5 species), herb habitus (37%), processing method by boiling (30%), and administration method by drinking (29%), and paste (29%), the form of single-use and mixture is quite balanced (49 and 48%). The primary source of obtaining medicinal raw materials comes from the yard (57%), and plant sources come from wild growing (59%). The knowledge of medicinal plants possessed by traditional healers should be continued documented; thus, the diversity of medicinal plants can be preserved for the next generation.

**Keywords:** Dayak Desa, diversity, medicinal plants, traditional healers

## Introduction

Indonesia is known to the world as a country with remarkable ethnic and cultural diversity. Different regions have different ethnicities and cultures, which affects the various ways people use plants, one of which is medicinal plants. Several studies related to the use of medicinal plant based on ethnic have been reported, such as the Dayak Kanayant (Riadi et al. 2019), Dayak Seberuang (Takoy et al. 2013), Dayak Darok and Bukat (Yusro et al. 2014), Dayak Jangkang (Sari et al. 2015), Dayak Tabun (Wildayati et al. 2016), Dayak Iban (Yusro et al. 2019), and Dayak Desa (Supiandi et al. 2019).

The Dayak Desa tribe is a sub-division of the large group of Dayak tribes who live in West Kalimantan. The Dayak sub-ethnic in West Kalimantan is recorded at 151 groups with 168 language diversity (Alloy 2008). The Dayak Desa tribe is widely spread in Sintang Regency and occupies several areas in Kelam Permai District, Sintang Regency. Sintang District is known to have quite a high diversity of medicinal plants, as reported by Mulyadi et al. (2014), Yusro et al. (2020), Supiandi et al. (2019), and Yusro et al. (2020). Various medicinal plants are used by the communities and traditional healers for health care or treatment of diseases.

Today, a traditional healer (battra) is a very rare profession. People are now at ease to obtain modern

medication. The assumption that modern medicine is faster in healing than traditional medication has affected more or less eroded traditional healer presence raising concerns about the loss of medicinal plant knowledge since the transmission of this knowledge is not going well to the next generation. The lack of documentation on the batrra's knowledge of medicinal plants certainly needs attention, and serious efforts to save that knowledge as reported by Indarto & Kirwanto (2018), Rania et al. (2019), and Ningsih et al. (2020).

A study was carried out by Yusro et al. (2020) showed that people within three villages of Kelam Permai District use 198 species of medicinal plants. The use of these medicinal plants is carried out by people from various tribes, while studies on the battra of the Dayak Desa have not been carried out.

Further research to determine the presence of battra's of Dayak Desa and does they still practice traditional medication is needed. Furthermore, analyze whether their knowledge also become public knowledge of Kelam Permai District; and plants used by battra are also used by the public, and analyze the similarities or differences in the medicinal plants used by battra and the general public in Kelam Permai District.

## Materials and Method

### Time and place of research

The research was conducted in June 2018. The research sites were in Kebong and Merpak villages, Kelam Permai District, Sintang District (Figure 1).

### Data collection

This research was conducted by interviewing the battra of the Dayak Desa tribe. Village officials and local community leaders shared the information regarding the existence of the battra. A questioner as an instrument is used. We aksed the battra, the species of medicinal plants used, how to process and mix the remedy, and the location of the medicinal plants taken (Rania et al. 2019). The plants mentioned by battra then documented; hence their scientific names were identified (Yusro et al. 2020).

Furthermore, the data were analyzed, and the plants informed by battra were then documented, then their scientific names were identified (Yusro et al. 2020).


Figure 1. Research area of Kebong and Merpak villages

## Result and Discussion

### Characteristics of Dayak Desa battra

Nowadays, the community of Dayak Desa in Kebong and Merpak villages still have battra or in their terms it is called "dukun." Battra has a significant role in physical medicine (physical) and psychological treatment (spirit disorders). The results of research in this area, there are four people as battra (physical healers) who are still practicing medicine. A total of 3 people works as battra who help with childbirth (dukun beranak), while the other one is a general battra (for healing various types of diseases) (Table 1).

The traditional medical practices carried out by the four battra who focus on using plants as the primary source of medicinal ingredients, although sometimes with some additional incantations or mantras that aim to strengthen the properties of the medicinal plants themselves. The use of incantations or spells in traditional medicine was also reported in the Tidung community in Tarakan City (Lesmana et al. 2018). They also have a specific requirement to pick up the plant, called "pengkeras." The pengkeras can be chicken, rice, nails, and thread. The time for harvesting the plants has also been determined. This requirement is so that the disease suffered by the patient does not turn around to battra.

Tabel 1. The characteristics of Battra of Kebong and Merpak Villages, Sintang Regency

| No | Respondent | Knowledge Source | Gender | Age | Village | Number of Family Member |
|---|---|---|---|---|---|---|
| 1 | Childbirth battra | Parents | Woman | 68 | Kebong | 5 |
| 2 | Childbirth battra | Parents | Man | 60 | Kebong | 2 |
| 3 | Childbirth battra | Parents | Man | 59 | Merpak | 3 |
| 4 | General battra | Parents | Man | 63 | Merpak | 3 |

Through the interviews, we found that the knowledge owned by battra comes from parents, whether it is taught directly by their parents or they get it because it is inherited naturally from their parents. In some cases, the medicinal plant's knowledge is obtained because of inspiration from the spirit or dreams. Interestingly, we found that among the three people who gave birth, 2 of them were male, it means that there is no gender difference regarding the profession of labor battra. Regarding the age, battra in these two villages are 60 years old, while no descent has inherited their knowledge. This situation is undoubtedly worrying because, in the future, this profession may disappear as their number decreases from year to year.

**The medicinal plants used by the battra of the Dayak Desa**

The battra of Dayak Desa in Merpak and Kebong villages uses 59 medicinal plants (Table 2). In our previous report, we found that people in Kelam Permai District used 198 species of medicinal plants (Yusro et al. 2020); therefore, the number of medicinal plants used by Battra was classified as fewer. It is presumably due to not all plants can be mentioned by battra because there are specific requirements called "pengkeras" that have not been fulfilled.

Compared with results reported by Yusro et al. (2020), among all plants mentioned by Battra, there are 39 species of plants used by the general public in Kelam Permai District, 20 species other have not been used. Those 20 species include akar micut, akar tambun, bentak dalam, bentak tulang, bisa-bisa, bunga sakit pinggang, daun balik angin, engkeruruh, ensanga, entuyut, kayu bisa, kayu malam, kempas, kosa, lenga, perut manok, ribu-ribu, tangkup merah, tangkup putih, and untak kempul. The presence of plants that were already known to the general public proven the transmission of medicinal plant's knowledge by traditional healers was quite successful in Battra of Dayak Desa.

*Plant Family*

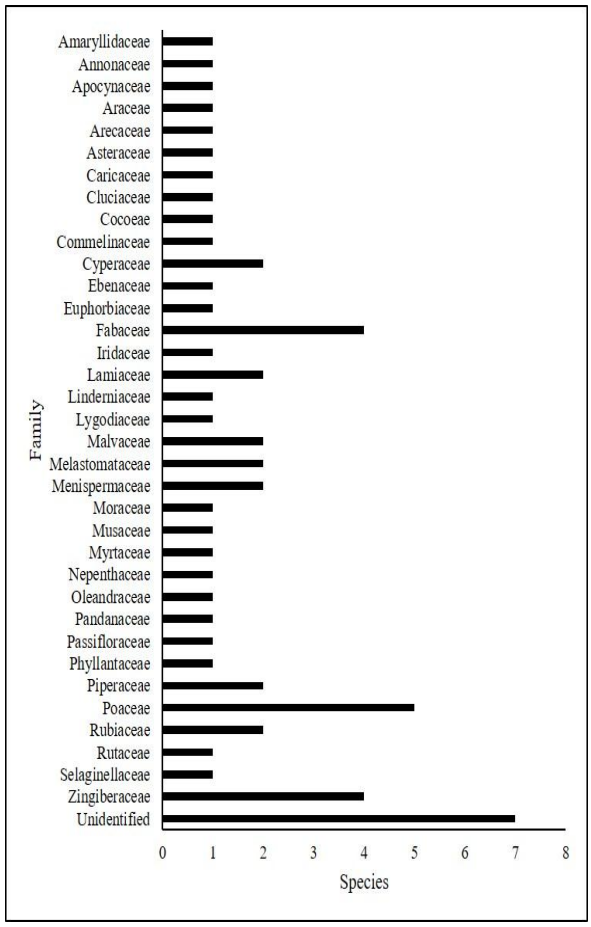



Figure 2. Plant family used by battra of Dayak Desa

Table 2. Medicinal plant and utilization form by battra of Dayak Desa in Kebong and Merpak villages

| No | Vernacular Name | Scientific Name | Family | Habitus | Medical use |
|---|---|---|---|---|---|
| 1 | Akar kuning | *Archangelisia flava* | Menispermaceae | Climber | Fever |
| 2 | Akar kunyit | *Fibraurea tincturia* | Menispermaceae | Climber | Fever |
| 3 | Akar micut | - | - | Climber | Stomach ache, hypertension |
| 4 | Akar tambun | - | - | Bush | Stiff |
| 5 | Asam kandis | *Garcinia xanthochymus* | Cluciaceae | Tree | Vaginal discharge, thrush, broken leg |
| 6 | Bawang lebit | *Eleutherine bulbosa* | Iridaceae | Herbaceous | Kidney disease, gout, gastric |
| 7 | Bawang merah | *Allium cepa* | Amaryllidaceae | Herbaceous | Broken leg, sprain |
| 8 | Bentak dalam | - | - | Bush | Joint pain |
| 9 | Bentak tulang | - | Fabaceae | Bush | Joint pain |
| 10 | Bisa-bisa | *Sauropus sp* | Phyllantaceae | Bush | Hypertension |
| 11 | Bunga sakit pinggang | *Tradescantia spathacea* | Commelinaceae | Herbaceous | Malaria |
| 12 | Daun balik angin | *Melastoma sp* | Melastomataceae | Shrub | Gout |
| 13 | Daun kerbang | *Psychotria viridiflora* | Rubiaceae | Shrub | Wound, stomach ache |
| 14 | Daun salam | *Syzygium poliantum* | Myrtaceae | Tree | Itch |
| 15 | Empangau merah | *Macaranga sp1* | Euphorbiaceae | Tree | Post labour treatment |
| 16 | Empangau putih, empait | *Macaranga sp2* | Euphorbiaceae | Tree | Post labour treatment, bruises, itch |
| 17 | Engkeruruh | *Ficus fistulosa* | Moraceae | Tree | Blood thinners |
| 18 | Ensanga | - | - | Bush | Post labour treatment |
| 19 | Entuyut | *Nepenthes sp* | Nepenthaceae | Herbaceous | Stiff |
| 20 | Jerangau | *Acorus calamus* | Araceae | Herbaceous | Fever, post labour treatment |
| 21 | Jeruk nipis | *Citrus aurantiifolia* | Rutaceae | Shrub | Tooth ache |
| 22 | Kapuk | *Ceiba pentandra* | Malvaceae | Tree | Fever |
| 23 | Kayu biyu | - | - | Shrub | Fever |
| 24 | Kayu malam | *Diosphyros maingayi* | Ebenaceae | Tree | Fever |
| 25 | Kelapa hijau | *Cocos nucifera* | Cocoeae | Palm | Meashles |
| 26 | Ketungsung | *Hibiscus rosa-sinensis* | Malvaceae | Shrub | Fever |
| 27 | Kempas | *Koompassia malaccensis* | Fabaceae | Tree | Wound, stomach ache |
| 28 | Kemunting | *Melastoma malabraticum* | Melastomataceae | Shrub | Wound |
| 29 | Kencur | *Kaempferia galanga* | Zingiberaceae | Herbaceous | Broken leg, sprain |
| 30 | Kosa | *Scleria laevis* | Cyperaceae | Herbaceous | Post labour treatment, sakit perut, hipertensi |
| 31 | Kunyit mangga | *Curcuma amada* | Zingiberaceae | Herbaceous | Skin diseases, stomach ache |
| 32 | Kunyit putih | *Curcuma zedoaria* | Zingiberaceae | Herbaceous | Stomach ache |
| 33 | Kunyit | *Curcuma longa* | Zingiberaceae | Herbaceous | Anemia, thrush, vaginal discharge |

| No | Vernacular Name | Scientific Name | Family | Habitus | Medical use |
|---|---|---|---|---|---|
| 34 | Lalang | *Imperata cylindrica* | Poaceae | Herbaceous | Post labour treatment |
| 35 | Lamang | *Scleria sumatrensis* | Cyperaceae | Herbaceous | Post labour treatment, joint pain |
| 36 | Leban | *Vitex pubescens* | Lamiaceae | Tree | Cold |
| 37 | Leletup | *Passiflora foetida* | Passifloraceae | Herbaceous | Hypertension |
| 38 | Lenga | - | - | Herbaceous | Wound |
| 39 | Mambong | *Gymnanthemum amygdalinum* | Asteraceae | Shrub | Stomach ache, hypertension |
| 40 | Mengkudu | *Morinda citriolia* | Rubiaceae | Shrub | Flatulence |
| 41 | Padi | *Oryza sativa* | Poaceae | Herbaceous | Wound |
| 42 | Pakis kubuk | *Nephrolepis acutifolia* | Oleandraceae | Fern | Heart disease |
| 43 | Pandan | *Pandanus amaryllifolius* | Pandanaceae | Herbaceous | Malaria |
| 44 | Pepaya | *Carica papaya* | Caricaceae | Shrub | Malaria |
| 45 | Perut manok | *Lygodium microphyllum* | Lygodiaceae | Climber | Headache, fever |
| 46 | Pisang | *Musa acuminata* | Musaceae | Herbaceous | Thrush |
| 47 | Pulai | *Alstonia scholaris* | Apocynaceae | Tree | Snake venom |
| 48 | Ribu-ribu | *Selaginella doederleinii* | Selaginellaceae | Herbaceous | Antenatal treatment |
| 49 | Rotan | *Calamus sp* | Arecaceae | Climber | Toothache |
| 50 | Rumput belanda hijau | *Axonopus compressus* | Poaceae | Herbaceous | Wound |
| 51 | Rumput belanda | *Axonopus fissifolius* | Poaceae | Herbaceous | Wound, joint pain |
| 52 | Rumput riman | *Legazpia polygonoides* | Linderniaceae | Herbaceous | Wound |
| 53 | Serai | *Cymbopogon citratus* | Poaceae | Herbaceous | Vaginal discharge, thrush |
| 54 | Sirih | *Piper betle* | Piperaceae | Climber | Cold, bruises, nosebleed |
| 55 | Sirih merah | *Piper ornatum* | Piperaceae | Climber | Bruises |
| 56 | Sirsak | *Annona muricata* | Annonaceae | Shrub | Hypertension |
| 57 | Tangkup merah | *Bauhinia sp1* | Fabaceae | Bush | Dysentery |
| 58 | Tangkup putih | *Bauhinia sp2* | Fabaceae | Bush | Dysentry, broken leg, sprain, fever |
| 59 | Untak kempul | *Callicarpa longifolia* | Lamiaceae | Shrub | Vaginal discharge, thrush |

Table 2 continued.

| No | Plant Part | Processing Mode | Administration Mode | Plant Location | Plant Source | Remedy Form |
|---|---|---|---|---|---|---|
| 1 | Root, stem | Decoction | Drink | Forest | Wild | Mixtured |
| 2 | Root, stem | Decoction | Drink | Forest | Wild | Mixtured |
| 3 | Leaves | Decoction | Drink | Forest | Wild | Mixtured |
| 4 | Leaves | Tumbuk | Patch | Forest | Wild | Mixtured |

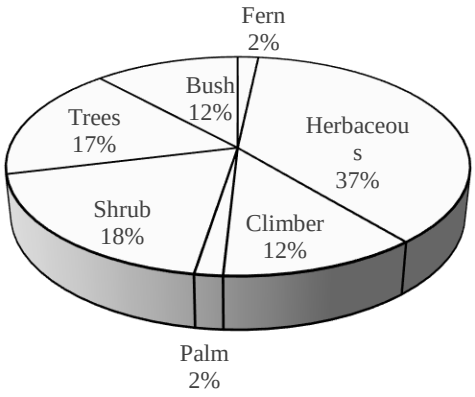
| No | Plant Part | Processing Mode | Administration Mode | Plant Location | Plant Source | Remedy Form |
|---|---|---|---|---|---|---|
| 5 | Buah | Bakar | Eat | Forest | Wild | Mixtured |
| 6 | Umbi | Tanpa pengolahan | Eat | Yard | Cultivated | Single |
| 7 | Umbi | Tumbuk | Patch | Market | Purchased | Mixtured |
| 8 | Leaves | Decoction | Drink | Yard | Wild | Single |
| 9 | Leaves | Decoction | Drink | Forest | Wild | Mixtured |
| 10 | Leaves | Brew | Drink | Yard | Cultivated | Single |
| 11 | Leaves | Decoction | Eat | Yard | Cultivated | Single |
| 12 | Leaves | Decoction | Drink | Forest | Wild | Single |
| 13 | Leaves | Chew | Patch | Forest | Wild | Mixtured |
| 14 | Leaves | Decoction | Bath | Yard | Cultivated | Single |
| 15 | Leaves | Soak | Bath | Yard | Wild | Mixtured |
| 16 | Leaves, stem | Soak, decoction, squeezed | Bath, drink, scrub | Yard, forest | Wild | Mixtured |
| 17 | Leaves | Squeezed | Rub | Forest | Wild | Single |
| 18 | Leaves | Soak | Bath | Yard | Wild | Mixtured |
| 19 | Leaves | Pounded | Patch | Forest | Wild | Mixtured |
| 20 | Root, leaves | Decoction, soak | Bath | Forest | Wild | Mixtured |
| 21 | Leaves | Soak | Gargle | Yard | Cultivated | Single |
| 22 | Leaves | Squeezed | Patch | Yard | Cultivated | Single |
| 23 | Root | Decoction | Bath | Forest | Wild | Mixtured |
| 24 | Root | Decoction | Bath | Forest | Wild | Mixtured |
| 25 | Fruit juice | Direct use | Drink | Yard | Cultivated | Single |
| 26 | Leaves, flower | Squeezed | Patch | Yard | Cultivated | Single |
| 27 | Leaves | Chew | Patch | Forest | Wild | Mixtured |
| 28 | Leaves | Chew | Patch | Yard | Wild | Single |
| 29 | Rhizome | Pounded | Patch | Yard | Cultivated | Mixtured |
| 30 | Stem, leaves | Soak, decoction | Bath, drink | Yard, forest | Wild | Mixtured |
| 31 | Rimpang | Brew | Drink | Yard | Cultivated | Single |
| 32 | Rimpang | Chew | Patch | Yard | Cultivated | Single |
| 33 | Rimpang | Pounded, burn | Drink, eat | Yard | Cultivated | Single, mixtured |
| 34 | Leaves | Soak | Bath | Yard | Wild | Mixtured |
| 35 | Stem, leaves | Soak, pounded | Bath, patch | Yard | Wild | Mixtured |
| 36 | Leaves | Squeezed | Patch | Forest | Wild | Mixtured |
| 37 | Leaves | Seduh | Drink | Yard | Wild | Single |
| 38 | Seeds | Chew | Rub | Yard | Cultivated | Mixtured |
| 39 | Leaves | Decoction | Drink | Yard | Cultivated | Mixtured |
| 40 | Leaves | Smoked | Patch | Yard | Cultivated | Single |

| No | Plant Part | Processing Mode | Administration Mode | Plant Location | Plant Source | Remedy Form |
|---|---|---|---|---|---|---|
| 41 | Seeeds | Chew | Rub | Yard | Cultivated | Mixtured |
| 42 | Leaves | Cook | Eat | Forest | Wild | Single |
| 43 | Leaves | Decoction | Drink | Yard | Cultivated | Single |
| 44 | Leaves | Decoction | Eat | Yard | Cultivated | Single |
| 45 | Stem, leaves, whole part | Soak | Bath | Forest | Wild | Single, mixtured |
| 46 | Stem juice | Direct use | Rub | Yard | Cultivated | Single |
| 47 | Sap | Direct use | Rub | Forest | Wild | Single |
| 48 | Leaves | Pounded | Patch | Yard | Wild | Single |
| 49 | Stem | Hisap | Gargle | Forest | Wild | Single |
| 50 | Leaves | Kunyah | Patch | Yard | Wild | Single |
| 51 | Leaves | Chew, pounded | Patch | Yard | Wild | Single |
| 52 | Whole part | Chew, pounded | Patch | Yard | Wild | Single |
| 53 | Stem | Burn | Eat | Yard | Cultivated | Mixtured |
| 54 | Leaves | Decoction, smoked, direct use | Bath, patch | Yard | Cultivated | Single |
| 55 | Leaves | Decoction | Drink | Yard | Cultivated | Single |
| 56 | Leaves | Decoction | Drink | Yard | Cultivated | Single |
| 57 | Leaves | Decoction | Drink | Forest | Wild | Mixtured |
| 58 | Leaves, root | Decoction, pounded | Drink, patch | Forest | Wild | Mixtured |
| 59 | Leaves, stem, fruit | Burn | Eat | Forest | Wild | Mixtured |

Based on the identification results, battra's of Dayak Desa mention 59 species of medicinal plants and distributed in 36 families. The predominantly mentioned families were Poaceae with five species, followed by Zingiberaceae and Fabaceae with four species each, Rubiaceae, Piperaceae, Menispermaceae, Melastomataceae, Malvaceae, Lamiaceae, and Cyperaceae with two species each. Families remain with only one species, namely Selaginellaceae, Rutaceae, Phyllantaceae, Passifloraceae, Oleandraceae, Nepenthaceae, Musaceae, Moraceae, Lygodiaceae, Linderniaceae, Iridaceae, Euphorbiaceae, Ebenaceae, Commelinaceae, Cocoeae, Clusiaceae, Caricaceae, Asteraceae, Arecaceae, Araceae, Apocynaceae, Annonaceae and Amaryllidaceae (Figure 2).

Our findings resonate with the result reported by Yusro et al. (2020), where both the general public and battra use Zingiberaceae and Poaceae as predominance plant families. It is presumed that the transmission of the medicinal plant's knowledge between battra and the general public has been going on so far. The transmission can occur either during the practice where people can make potions taught by battra or through daily interactions where people can ask battra about the benefits or function of a plant; then, they applied it with cultivated and used it as medicine.

*Habitus*




Gambar 3. Plant habitus used by battra of Dayak Desa

The battra's of Dayak Desa uses various habitus plants, including ferns, herbaceous, climber, palms, shrubs, and trees. The most extensive use is herbaceous (37%), followed by shrubs (18%) and trees (17%). At the same time, the lowest was fern and palm, with 2% each. Our findings resonate with the report of Susanti et al. (2018) wherein Krui Lampung community herbaceous is the primary ingredient in traditional remedies, the similar usage also reported by Rania et al. (2019) within battra's of Masbangun community and battra in Bunut Village, Sanggau Regency (Ningsih et al. 2020). Generally, herbaceous plants are cultivated plants, including those from the Zingiberaceae family. In terms of conservation, the high usage of herbaceous in traditional medicine is less damaging because they are fast-growing plants.

*Plant Parts*

In this present study we found that the battra's of Dayak Desa in Merpak and Kebong villages use various plant parts include plant juice, roots, stems, seeds, fruit, flowers, leaves, gums, rhizomes, tubers, and whole parts (Figure 4). The most extensive use was on the leaves (55%), followed by stems (14%), and roots (8%), while the lowest was for flowers and sap each 1%. The extensive use of leaves in medicinal ingredient remedy is also carried out by the Krui Lampung community (Susanti et al. 2018) and battra in Bunut Village, Sanggau Regency (Ningsih et al. 2020). It is presumed that the extensive use of leaves due to its readily available, rapidly propagates, easy to handle, and less damage to the plant. The linear knowledge between the general public and battra is a sign that they are concern about the medicinal plant's sustainability. The interruption of the plant environment leads to the extinction of these plants.

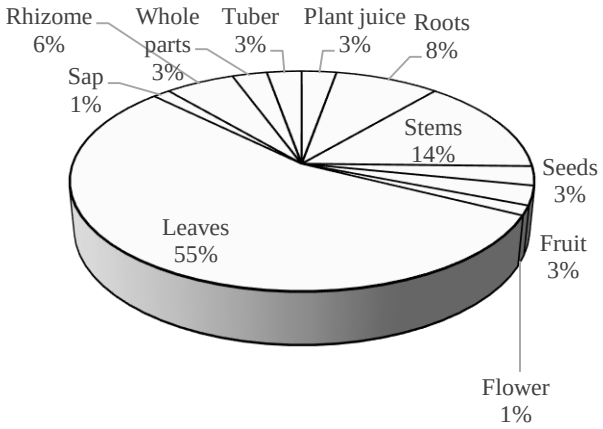



Figure 4. Medicinal plant parts used by battra of Dayak Desa

*Processing Method*

During interviews, battra's of Dayak Desa explain the medicinal plant remedy preparation procedure in their practice. The remedies were prepared by brew, smoked, soak, pounded, cooked, burn, chew, decoction, suction, squeezed, and direct use (Figure 5). The most preparation method used by battra is decoction (30%) followed by pounded (14%), chew (13%) and soak (13%).

A similar technique is also used by battra in Masbangun Kayong Utara Village (Rania et al. 2019) and battra in Bunut Village, Sanggau Regency (Ningsih et al. 2020). In this present study, we found decoction is the most frequently used method to process medicinal potion.

The decoction is a simple and easy processing technique so that anyone can do it in practice. The decoction is a technique to remove the active substances in plants, and it is considered the most effective approach because, with heat, the plant juices will come out quickly.

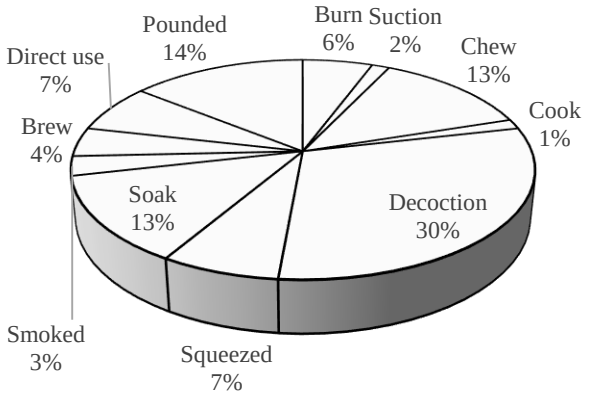



Figure 5. Processing method of medicinal plants by battra of Dayak Desa

*Administration Method*

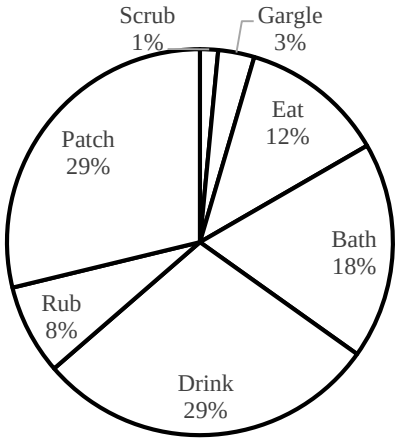



Figure 6. Administration method of medicinal plants by battra of Dayak Desa

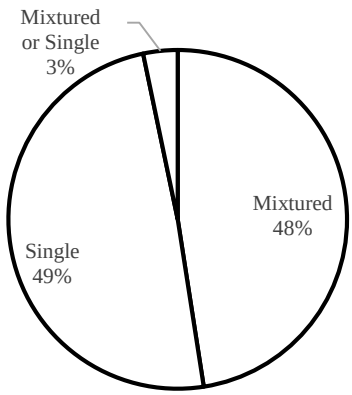
The most common administration mode of medicinal plants remedy suggested by battra was by drinking (29%), patching (29%), and bathing (18%) and the lowest by rubbing (1%) (Fig. 6). This result correlates with the processing method suggested by batra, a remedy prepared by decoction will administer by drinking. The same procedure was done by battra in Masbangun Kayong Utara Village (Rania et al. 2019), and battra in Bunut Village, Sanggau Regency (Ningsih et al. 2020), where the administration method to use the plant remedy is by drinking.

Our finding revealed that the knowledge in utilizes plants as medicine between people and battra in Kelam Permai Subdistricts is almost equal. This result shows an established relationship between battra as a traditional healer and the community as a patient and a medicinal plant user. A transfer of knowledge, which is consciously or not, has impacted the medicinal plants' knowledge of the community, thus improving family health.

*Remedy's form*

The use of plants as medicinal ingredients can be single, mixed, or both. The usage of plants formed by battra's (Fig.7) both singly and mixed in a relatively equal (49 and 48%) means that battra possed rich knowledge to make a medicinal herb consisting of several species of plants. This result is slightly different from that used by the Iban Dayak tribe in Lanjak Besar and Sepandan Villages. The dominant use of plants by these Dayak Iban is in the singular form (Yusro et al. 2019).

In traditional communities, battra is the only person who knows about making medicinal remedies by combining several plant species. The presence of several plant species in a potion makes its effectiveness higher; thus, the therapy can be performed thoroughly and faster. In the future, the transfer of knowledge owned by battra to the community is expected to be carried out entirely and increase the chance of general people to make their remedy; thus, that might save the knowledge possessed by Battra, which is now only a few.




Gambar 7. Remedies Form by battra of Dayak Desa

*Plant's location*

The primary sources for medicinal raw materials

used by battra's are derived from yards (57%) and forests (38%), and only a small portion is purchased from the market (2%) (Figure 8). Yusro et al. (2019) reported a similar situation in the Dayak Iban tribe in Lanjak Besar and Sepandan villages, most of the plants used as medicine derived from yard and forest. Yusro et al. (2020) reported that people in Kelam district also used medicinal plants from yards and forests, the same as we found in battra. However, the role of the forest for the battra is more extensive than to the Kelam community. It is because some plants only can be found in the forest. In addition, we found that 20 species of plants belonging to battra that not used by the general people.

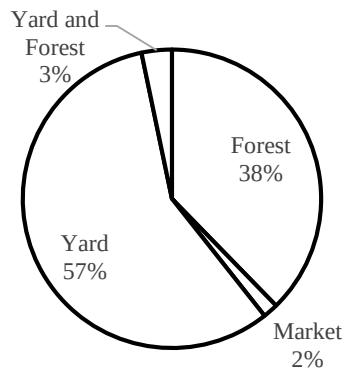



Figure 8. The location of plant's used by battra of Dayak Desa

*Plant's source*

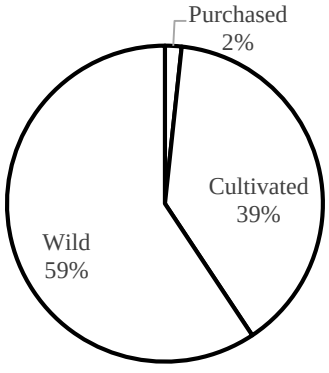



Figure 9. The source of plant's used by battra of Dayak Desa

The medicinal plant's location determines the plant's source comes. Whether from cultivation, growing wild, or being purchased. The results showed that battra mostly used wild plants (59%) compared to cultivated plants (39%) or plants that had to be purchased (2%) (Figure 9). Our finding contradicts within the Iban Dayak tribe in Lanjak Besar and Sepandan Villages (Yusro et al. 2019), who use more cultivated plants than wild plants. In their habitats, wild plants compete with others for lights and nutrients, thus impacting the active substance content, which is thought more than those in cultivated plants. It is directly or indirectly, will impact on differences in their activity in curing a disease.

## Conclusion

Battra from the Dayak Desa tribe still using plants as ingredients in traditional medicine. Many medicinal plants used by battra have been used by the community. The transfer of knowledge carried out by Battra to the community has been running but has not been optimal. Battra's knowledge of medicinal plants should be continuously carried so that medicinal plant's diversity can be inherited for the next generation.

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