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 Habit

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).
| No | Family               | Botanical name                                    | Vernacular Name | Indications                                                                 | Plant part usage | Processing Method | Utilization Method | Habitus | Cultivated/Wild | Plant location |
|----|----------------------|--------------------------------------------------|----------------|------------------------------------------------------------------------------|------------------|-------------------|-------------------|---------|----------------|----------------|
| 1  | Acanthaceae          | Clinacanthus nutans L                           | Kakamek         | Broken bone                                                                  | Leaves           | Pounded           | Patched           | Shrub   | Wild           | Yard           |
| 2  | Acanthaceae          | Graptophylum pictum L                           | Lingkudikng     | Menstruation, post- maternal treatment, fertilizing the womb                | Leaves and roots | Boiled            | Drunk             | Shrub   | Cultivated     | Yard           |
| 3  | Acanthaceae          | Justicia gendarussa Burm                        | Tuba lonyekng   | Broken bone and inflammation                                                | Leaves           | Pounded and burnt | Patched and rubbed | Herb    | Wild           | Yard           |
| 4  | Alliaceae            | Allium sativum L                                | Bawang putih    | Sprain, carbuncle, and body pain                                           | Bulbs            | Pounded           | Herb              | Cultivated | Market         |                |
| 5  | Amaryllidaceae       | Crynum asiaticum L                              | Bawang bombai   | Sprain                                                                       | Bulbs            | Pounded           | Herb              | Cultivated | Yard           |                |
| 6  | Amaranthaceae        | Amaranthus sp.                                  | Bayam           | Post-maternal treatment                                                     | Leaves           | Boiled            | Eaten             | Herb    | Cultivated     | Market         |
| 7  | Amaranthaceae        | Celosia cristata                                | Bunga manok     | Inflammation                                                                 | Leaves           | Pounded           | Herb              | Wild    | Yard           |                |
| 8  | Annonaceae           | Annona mucirata L                               | Nangka’ balanda | Fever, gastric                                                               | Leaves and roots | Squeezed and brewed | Drunk             | Shrub   | Cultivated     | Yard           |
| 9  | Anisophylleaceae     | Anisophyllea disticha                           | Sumiang         | Diarrhea                                                                     | Leaves           | Direct used       | Eaten             | Shrub   | Wild           | Forest         |
| 10 | Apiaceae             | Coriandrum sativum L                           | Katumbar        | Cholesterol                                                                  | Fruits           | Boiled            | Drunk             | Bush    | Cultivated     | Market         |
| 11 | Apiaceae             | Daucus carota L                                 | Wortel          | Eye treatment                                                                | Fruits           | Shredded          | Eaten             | Bush    | Cultivated     | Market         |
| 12 | Araceae              | Colocasia esculenta L                          | Be’a            | Wound                                                                        | Leaves           | Chopped           | Patched           | Herb    | Wild           | Yard           |
| 13 | Areceace             | Areca catachu L                                 | Pinang          | Broken bone                                                                  | Midrib           | Pounded           | Patched           | Tree    | Cultivated     | Yard           |
| 14 | Araliaceae           | Polyscias scutellaria                           | 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   | *Chromolaena odorata* L            | Carone         | Stomachache, tonic, and fever                    | Roots and        | Boiled, and squeezed     | Drunk and         | Shrub   | Wild            | Yard           |
|    |              | *Elephantopus scaber* L            |                | Fever, dysentery, diarrhea                       | Leaves           | Boiled                   | compressed        |         |                 |                |
| 16 | Asteraceae   |                                     | Jam teo        |                                                | Roots and leaves | Boiled                   | Drunk and         | Shrub   | Wild            | Yard           |
|    |              |                                     |                |                                                | Leaves           | Boiled                   | compressed        |         |                 |                |
| 17 | Asteraceae   | *Gymnanthemum amygdalinum*         | Panyambung     | Fever, hypertension                              | Leaves           | Boiled                   | Compressed         | Shrub   | Cultivated      | Yard           |
|    |              | *Blumea balsamifera*               | nyawa Kimabo   | Post-maternal treatment                          | Leaves           | Boiled                   | drunk             | Shrub   | Wild            | Forest         |
| 18 | Asteraceae   | *Artemisia vulgaris*               | Sasunge        | Post-maternal treatment                          | Leaves           | Boiled                   | Drunk              | Herb    | Cultivated      | Yard           |
| 19 | Aspleniaceae | *Asplenium nidus*                 | Paku’ sanah    | Broken bone, cramp                               | Leaves           | Pounded and boiled        | Patched and        | Bush    | Wild            | Forest         |
| 20 | Aspleniaceae |                                     |                |                                                |                  |                           | eaten              |         |                 |                |
| 21 | Blechnaceae  | *Blechum orientale*                | Paku’ mamuraja |                                                | Shoots           | Pounded                  | Patched            | Herb    | Wild            | Forest         |
| 22 | Crassulaceae | *Kalanchoe pinnata*               | Padingin       | Fever                                           | Leaves           | Boiled                   | Compressed         | Herb    | Cultivated      | Yard           |
| 23 | Dilleniaceae | *Dillenia indica*                 | Abuatn         | Inflammation                                    | Leaves           | Pounded and burnt         | Rubbed             | Shrub   | Wild            | Forest         |
| 24 | Euphorbiaceae| *Phyllanthus urinaria* L           | Antidur        | Fertilizing the womb                            | Roots            | Boiled                   | Drunk              | Herb    | Wild            | Yard           |
| 25 | Euphorbiaceae| *Macaranga sp.*                   | Limpe’et       | Inflammation                                    | Leaves           | Pounded and burnt         | Rubbed             | Shrub   | Wild            | Yard           |
| 26 | Euphorbiaceae| *Manihot utilisima* Pohl           | Ubi            | Anemia                                          | Leaves           | Boiled                   | Eaten              | Shrub   | Cultivated      | Yard           |
| 27 | Fabaceae     | *Vigna radiata*                   | Kacambah       | Fertilizing the womb                            | Shoots           | Boiled                   | Eaten              | Bush    | Cultivated      | Market         |
| 28 | Fabaceae     | *Cajanus cajan*                   | Kacang bue     | Fertilizing the womb                            | Roots            | Boiled                   | Drunk              | Herb    | Cultivated      | Yard           |
| 29 | Gleicheniaceae| *Gleichenia linearis*             | Taboyo         | Fertilizing the womb                            | Shoots           | Pounded                  | Patched            | Bush    | Wild            | Forest         |
| 30 | Lamiaceae    | *Plechrianthus scutellarioides*    | 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? | Plant location |
|----|----------------|-------------------------------------|-----------------|-------------------------------------------------|------------------|---------------------------|-------------------|---------|-------------|----------------|
| 31 | Liliaceae      | *Eleutherine americana* Merr        | Bawang lama     | Breast cancer, carbuncle, and hypertension       | Bulbs            | Pounded and Boiled        | Patched and drunk | Herb    | Cultivated  | Yard           |
| 32 | Loranthaceae   | *Scurrula atropurpurea*             | Korouncit       | Broken bone                                      | Roots            | Pounded                   | Patched           | Shrub   | Wild        | Yard           |
| 33 | Loranthaceae   | *Nephololpis bisherrata*            | Paku’ uban      | Remove scars                                     | Shoots           | Pounded                   | Patched           | Herb    | Wild        | Yard           |
| 34 | Malvaceae      | *Abelmoschus esculentus* L          | Kacang tanuk    | Constipation                                     | Fruits           | Boiled                    | Eaten             | Bush    | Cultivated  | Yard           |
| 35 | Malvaceae      | *Hibiscus rosa-sinensis* L          | Kembang sepatu  | Carbuncle                                        | Leaves           | Pounded                   | Patched           | Shrub   | Cultivated  | Yard           |
| 36 | Melastomaceae  | *Melastoma candidum*                | Lingkodok       | Diarrhea                                         | Leaves           | Direct used and boiled    | Eaten and drunk   | Herb    | Wild        | Yard           |
| 37 | Meliaceae      | *Melia azedarach*                   | Bambali         | Broken bone                                      | Stem             | Direct used               | Patched           | Tree    | Wild        | Forest         |
| 38 | Myrtaceae      | *Psidium guajava* L                 | Jamu karas      | Diarrhea                                         | Leaves           | Boiled                    | Drunk             | Shrub   | Wild        | Yard           |
| 39 | Myrtaceae      | *Syzygium polyanthum*               | Salam           | Cholesterol, hypertension and breast cancer      | Leaves and roots | Boiled                    | Drunk             | Shrub   | Cultivated  | Yard           |
| 40 | Myrtaceae      | *Syzygium zeelanicum*               | Ubah            | Breast cancer                                    | Roots            | Pounded                   | Patched           | Shrub   | Wild        | Forest         |
| 41 | Orchidaceae    | *Phalaenopsis amabilis*             | Anggrek putih   | Smallpox                                         | Leaves           | Pounded                   | Patched           | Bush    | Wild        | Forest         |
| 42 | Palmaceae      | *Cocos nucifera*                    | Kalapa          | Gastric Vaginal discharge, cough, allergy        | Roots            | Brewed                    | Drunk             | Tree    | Cultivated  | Yard           |
| 43 | Piperaceae     | *Piper bettle* L                    | Karakek         | Vaginal discharge, cough, allergy                | Leaves           | Boiled and burnt          | Drunk             | Liana   | Cultivated  | Garden         |
| 44 | Piperaceae     | *Piper nigrum* L                    | Sahakng         | Post-maternal treatment                           | Fruits           | Boiled                    | Drunk             | Liana   | Cultivated  | Garden         |
| 45 | Poaceae        | *Bambusa vulgaris* S                | Buluh bala      | Roots and midrib                                 | Roots            | Boiled                    | Drunk             | Shrub   | Wild        | Forest         |
| 46 | Poaceae        | *Imperata cylindrica* L             | Padakng         | Fertilizing the womb                             | Roots            | Boiled                    | Drunk             | Herb    | Wild        | Yard           |
| 47 | Poaceae        | *Coix lacryma-jobi*                 | 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      | Cymbopogon citratus| Sare            | Flatulence, tonic, cholesterol       | Stem             | Boiled            | Drunk              | Herb    | Cultivated      | Yard           |
| 49  | Rutaceae     | Citrus amblycarpa  | Limo sambal     | Carbuncle                           | Leaves           | Pounded            | Patched            | Shrub   | Cultivated      | Yard           |
| 50  | Salicaceae   | Flacourtia rukam   | Rukapm          | Carbuncle, hypertension              | Leaves and Roots | Direct used        | Eaten and Drunk    | Tree    | Wild            | Forest         |
| 51  | Sapindaceae  | Nephelium lappaceum| Rambutan        | Gastric                             | Roots            | Boiled and boiled  | Drunk              | Herb    | Wild            | Yard           |
| 52  | Solanaceae   | Physalis angulata  | Lalatup         | Dysentery, Gastric, hypertension     | Roots            | Boiled            | Drunk              | Herb    | Wild            | Yard           |
| 53  | Solanaceae   | Solanum torvum    | Marajakng       | Dental treatment                     | Roots            | Boiled            | Drunk              | Shrub   | Wild            | Yard           |
| 54  | Verbenaceae  | Vitex pinnata      | Laban           | Gastric                             | Leaves           | Direct used, boiled, and brewed | Eaten and Drunk | Tree    | Wild            | Forest         |
| 55  | Zingiberaceae| Boesenbergia pandurata| Antamu kunci   | Sprain, body pain                    | Rhizomes         | Pounded            | Patched            | Herb    | Cultivated      | Yard           |
| 56  | Zingiberaceae| Curcuma domestica  | Unyit           | Breast cancer, vaginal discharge     | Rhizomes         | Pounded and boiled | Patched and Drunk | Herb    | Cultivated      | Yard           |
| 57  | Zingiberaceae| Curcuma zanthorrhiza| Temulawak      | Breast cancer                        | Rhizomes         | Pounded            | Patched            | Herb    | Cultivated      | Yard           |
| 58  | Zingiberaceae| Kaemferia galanga  | Cakur           | Fertilizing the womb, post-maternal treatment | Rhizomes and leaves | Boiled          | Drunk              | Herb    | Cultivated      | Yard           |
| 59  | Zingiberaceae| Zingiber officinale| 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 grow 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.
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 treat 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).

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 drink. In this village, most medicinal plant potion is administered with drunk (38.67%) and patched (32%) (Fig. 5).

![Figure 5](image)

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 Merpak 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](image)

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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