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Ethnobotany of Medicinal Plants for Reproductive Health in Sepangah Village, Landak Regency

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Abstract: Medicinal plants are all types of plants that have medicinal benefits and contain nutrients that are proven to be good for health through the availability of phytochemicals. The use of medicinal plants in the community has existed since ancient times used as traditional medicine. In the community, the use of medicinal plants is still carried out today both as an alternative treatment and as a complement to modern medicine. Information related to medicinal plants carried out by the people of Sepangah Village is also not widely known, therefore a study was conducted which aims to determine the types of medicinal plants used by the people of Sepangah Village for reproductive health. This research method is descriptive with data collection techniques using triangulation in the form of interviews, observation, and documentation. Research information was obtained from 7 informants consisting of 1 village head, 2 battra, and 4 people who still utilize medicinal plants. The results showed that 18 species from 11 plant families were used for reproductive health. The most widely used plants are from the Zingiberaceae family. The most widely used plant part is the rhizome. The most widely used way of processing plants is boiled. The most widely used way of using plants is drinking. Treatment in reproductive health that is often done is to treat vaginal discharge and smooth postpartum blood in mothers after childbirth.

Keywords: Battra; Medicinal plants; Reproductive health; Traditional

Introduction

As a tropical country, Indonesia is known to have abundant biodiversity. The results of biodiversity must be utilized and preserved as well as possible. According to Tima et al. (2020), one of them is applied in the field of ethnobotany which studies the relationship between humans and their interactions with plants. According to Patiola et al. (2023), the development of ethnobotanical studies is increasingly attracting world attention, because ethnobotany is one way to maintain local wisdom with the knowledge and understanding of the community regarding existing local beliefs and culture.

Exploration conducted between plants and humans results in traditional knowledge (Bastidas-Bacca et al., 2023). According to Smith (2020), the importance of information about traditional knowledge must be preserved and utilized by documenting, organizing, and contributing to the discovery of other information. According to Fanisah et al. (2023), traditional knowledge is used to cure diseases using materials from nature or what is commonly referred to as traditional medicine. Traditional knowledge that is applied and inherited by ancestors in traditional medicine is due to the abundance of potential biodiversity.

The World Health Organization (WHO) recognizes the potential of traditional medicine as a global health service. The relationship between humans and nature has been known through the use of therapeutic plants. This can be seen from the geographical location of Indonesia which has a tropical climate by utilizing and cultivating certain plants (Dirgari et al., 2022). Medicinal plants are closely related to traditional medicine whose utilization is only based on experience in use (Harmida et al., 2011).

According to Yelianti et al. (2023), Indonesia is a country rich in medicinal plants. Utilization and conservation of biodiversity are essential because most

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of the Indonesian population depends on traditional medicines as health care. Valentino et al. (2022) said that one source of knowledge about medicinal plants is information from the community from the results of their interaction with the surrounding nature. People use medicinal plants as an alternative treatment, namely prevention, healing, health restoration, and health promotion (Maruca et al., 2019).

Medicinal plants are derived from plant body parts that are still simple and pure as ingredients for healing wounds or as other medicines (Hamzah et al., 2023). According to Hassan (2012), the term medicinal plants refers to various plants that have medicinal properties. In plants, there is a source of compounds to develop drug synthesis. Medicinal plants are useful as cures for certain diseases due to the presence of phytochemicals. The research conducted by Wadood et al. (2013) showed phytochemical results from medicinal plants consisting of terpenoids, phlorotannin, reducing sugars, flavonoids, and alkaloids. The content of phytochemicals in medicinal plants is found in various parts of the plant such as roots, leaves, and fruit.

Currently, interest in the utilization of medicinal plants is still lacking, one of which is in the new generation who are already interested in modern times. This is in line with Phumthum et al. (2019), who said that the a lack of adequate information and education about the correct and safe use of medicinal plants. This problem can be solved by conducting scientific research that is applied to the community in the practice of using medicinal plants. Battra's expertise in traditional medicine is believed to be based on their experience of using various plants for healing (Fanisah et al., 2023).

In West Kalimantan, especially the people of Sepangah Village, traditional medicine is still practiced from generation to generation. Many of the treatments used are for reproductive health. From the results of interviews, it is known that the treatment commonly used by the community is to treat vaginal discharge and care before and after childbirth. Through this information, this research was conducted as a reminder of the lack of public awareness about reproductive health care. This is because the community has not considered that reproductive health is important.

According to the World Health Organization (WHO), reproductive health is a state of complete physical, mental, and social well-being, not just free from disease or disability related to the reproductive system, its functions and processes. Reproductive health is a state of complete physical, mental, social well-being in all matters relating to the function and role of the reproductive system of men and women (Purbono et al., 2015). Reproductive health is usually caused by viruses, bacteria, and unbalanced lifestyles. Reproductive health knowledge must be recognized as early as possible, especially about menstruation and changes in body shape.

Based on the results of research, several medicinal plants are used specifically to address reproductive health problems. These problems are among the most important community and social problems worldwide (Tsobou et al., 2016). In the study of Cabada-Aguirre et al. (2023), used many medicinal plants as part of health care. The pharmacological effects contained in medicinal plants can maintain and care for reproductive health. Research is also in line with Van Andel et al. (2014) who use medicinal plants to treat menstrual disorders, namely treating menstrual pain and launching menstruation.

Research on medicinal plants for reproductive health has been conducted, one of which is in Umalor Village, West Malacca District, Malacca Regency using 24 plant species (Bria et al., 2019) and in Lakat Village, Tetaf Village, and Nauke Village in Kuatnana District, TTS Regency using 20 plant species (Malo et al., 2017). The local potential found around the place of residence is a means to involve the community in natural resource conservation efforts because medicinal plants in addition to having properties for human health also have a contribution to forest biodiversity.

Method

Time and Place Study

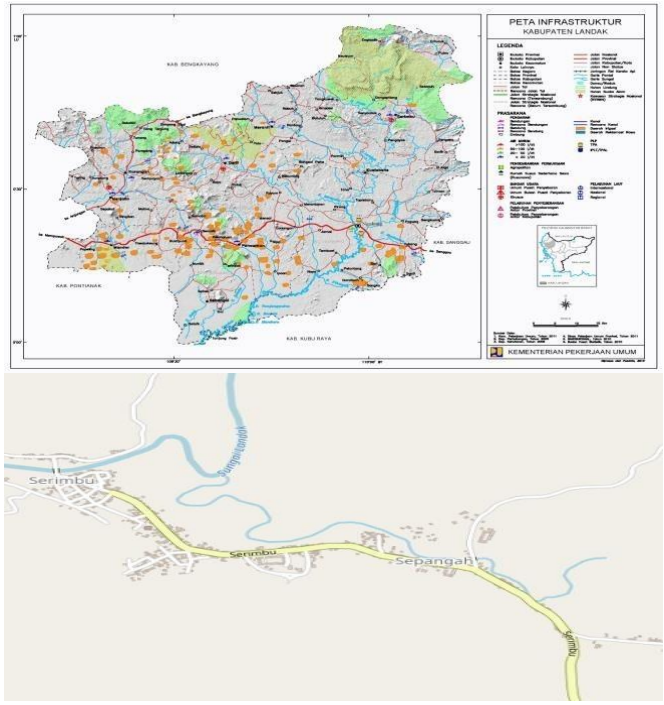

Figure 1. Research location

The research method used a descriptive method. This research was conducted in May 2023 in Sepangah

Village, Landak Regency, West Kalimantan Province. Based on data from the village office, there are 2 hamlets, namely Tepo Hamlet and Meroba Hamlet with 489 family heads. The research location can be seen in Figure 1.

Research Study

The research method uses a descriptive method. The sample determination used the *snowball sampling* technique. This technique includes one way to find and identify informants as research targets through relationship linkages (Nurdiani, 2014).

Data Collection

Data collection techniques were carried out using triangulation techniques, namely observation, interviews, and documentation. The interview technique was structured using an interview instrument sheet. The interview technique was conducted with informants consisting of 7 people, namely 1 village head, 2 battra, and 4 people who still utilize plants as medicines for reproductive health. The observation technique was carried out by observing and recording plant species and morphology found in plants using an observation sheet. The documentation technique is done by identifying plants to find out the classification of plants. Identification is done using reference sources in the book *Flora* by Steenis (2013), *inaturalist*, *powo.science* & *plantamor*. Some plant samples are also made in the form of herbarium to facilitate identification.

Result and Discussion

Based on data collection with triangulation techniques, it is known that there are 18 species and 11 families that are utilized as medicinal plants for reproductive health. This data can be seen in Table 1.

Table 1. List of Species, Families, Habitus and Locations of Medicinal Plants Found for Reproductive Health by the People of Sepangah Village

Local name/scientific name	Family	Habitus	Location found
Turmeric (*Curcuma longa* Linn.)	Zingiberaceae	Herb	Yard
Ginger (*Zingiber officinale* Rosc.)	Zingiberaceae	Herb	Garden
Red ginger (*Zingiber officinale* Var. Rubrum)	Zingiberaceae	Herb	Garden
Betel (*Piper betle* Linn.)	Piperaceae	Lianas	Yard
Red onion (*Allium cepa* Var. Aggregatum)	Liliaceae	Herb	Garden
Cat's whiskers (*Orthosiphon aristatus* (Blume) Miq.	Lamiaceae	Bushes	Yard
Laban (*Vitex pinnata* F. Glabrescens)	Lamiaceae	Tree	Forest
Areca nut (*Areca catechu* Linn.)	Arecaceae	Palm	Yard
Senduduk (*Melastoma malabathricum* Linn.)	Melastomataceae	Bushes	Forest
Curcuma (*Curcuma zanthorrhiza* Roxb.)	Zingiberaceae	Herb	Yard
Aromatic ginger (*Kaempferia galanga* Linn.)	Zingiberaceae	Herb	Yard
Sembung (*Blumea balsamifera* (L.) DC.)	Asteraceae	Shrub	Forest
Sambiloto (*Andrographis paniculata* (Burm.f.) Wall. Ex Ness)	Acanthaceae	Bushes	Yard
Sticky rice (*Oryza sativa* L. Var Glutinosa)	Graminae	Herb	Garden
Kandis acid (*Garcinia xanthochymus* Hook.f. ex T. Anderson)	Clusiaceae	Tree	Forest
Papaya (*Carica papaya* Linn.)	Caricaceae	Tree	Yard
Galangal (*Alpinia galanga* (L.) Wild.)	Zingiberaceae	Herb	Garden
Pepper (*Piper nigrum* Linn.)	Piperaceae	Lianas	Garden

From the results of the research in table 1, it is known that there are several families of plants that are used as medicines for reproductive health in the village can be seen in Figure 2.

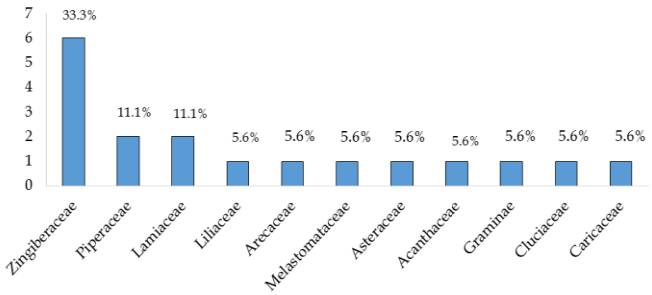

Figure 2. Percentage of plant abundance by family

From Figure 2, it is known that the Zingiberaceae family obtained the highest percentage of 33.3% and other families obtained the same percentage. In addition to the percentage of families, the habitus of medicinal plants can also be seen in Figure 3.

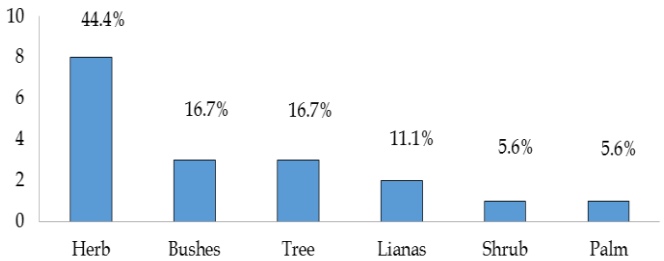

Figure 3. Percentage of plant habitus

From Figure 3, it is known that the most medicinal plants are found in herbaceous habitus with a percentage of 44.4% and the least is found in shrub and palm habitus with a percentage of 5.6%. The plants used were found in different locations. The data can be seen in Figure 4.

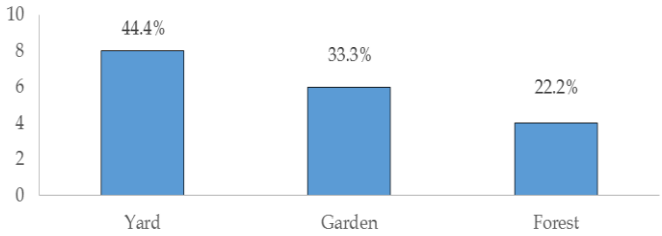

Figure 4. Percentage of plant discovery locations

From Figure 4, it is known that the yard is the location where the most plants are found with a percentage of 44.4% and the least found plants are forests with a percentage of 22.2%. The data related to plant parts used, how to process plants, and how to use plants. The data can be seen in Table 2.

In Table 2, data were obtained on the types of plants used to treat several diseases in reproductive health. The data obtained is based on the results of research through triangulation techniques. The utilization of plants by the people of Sepangah Village to overcome reproductive health problems has become a tradition that has been carried out for generations.

Table 2. List of Species, Families and Habitus of Medicinal Plants for Reproductive Health by the People of Sepangah Village

Local name	Parts used	How to process	How to use	Usability
Turmeric	Rhizome	Boiled	Drinking	Smooth menstruation, treat vaginal discharge, releases postpartum blood
Ginger	Rhizome	Boiled	Drinking	Increase male fertility, treat vaginal discharge, relieve menstrual pain, releases postpartum blood
Red ginger	Rhizome	Boiled	Drinking	Relieve menstrual pain, drying wounds after childbirth
Betel	Leaves	Boiled	Drinking	Treat vaginal discharge, close female genital organs
Red onion	Bulbs	Pounded	Drinking	Treat urinary tract infection, streamlines birth
Cat's whiskers	Trunk	Boiled	Drinking	Treats difficult urination, close female genital organs, treat vaginal discharge
Laban	Leaves	Pounded	Pasted	Streamlines birth, drying wounds after childbirth
Areca nut	Seeds	Boiled	Drinking	Treat vaginal discharge, treat excessive menstruation
Senduduk	Leaves	Boiled	Drinking	Treat vaginal discharge, treat bleeding womb
Curcuma	Rhizome	Brewed	Drinking	Releases postpartum blood
Aromatic ginger	Rhizome	Boiled	Drinking	Treat vaginal discharge, releases postpartum blood, increase male fertility
Sembung	Leaves	Boiled	Drinking	Relieve menstrual pain, releases postpartum blood
Sambiloto	Leaves	Boiled	Drinking	Treat urinary tract infection, treat vaginal discharge
Sticky rice	Seeds	Pounded	Pasted	Drying wounds after childbirth
Kandis acid	Fruit	Pounded	Pasted	Drying wounds after childbirth, releases postpartum blood
Papaya	Fruit	Cropped	Eaten	Treat urinary tract infection, smooth menstruation, increase male fertility
Galangal	Rhizome	Boiled	Drinking	Releases postpartum blood, reduces ejaculation early
Pepper	Seeds	Brewed	Drinking	Treats difficult urination, releases postpartum blood, reduces ejaculation early

From Table 2, it is known that in the process of processing medicinal plants, 6 parts of the plant are taken to make herbal ingredients, namely rhizomes, leaves, seeds, fruits, stems, and tubers. The data can be seen in Figure 5.

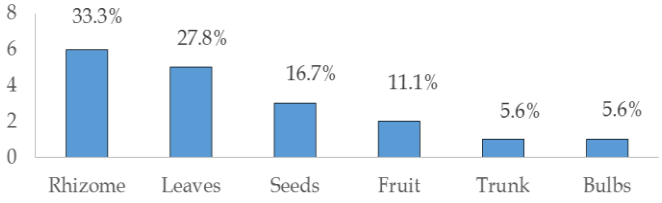

Figure 5. Percentage of plants parts

From Figure 5, it is known that the most widely used part of the plant is the rhizome with a percentage of 33.3% and the least used is the stem and tuber with a percentage of 5.6%. The application of the use of medicinal plants has its own procedures or herb combinations. How to process medicinal plants using traditional methods, namely by boiling, pounding, brewing, and cutting. The data can be seen in Figure 6.

From Figure 6, it is known that the most widely used plant processing is boiling with a percentage of 61.1%, and the least used is cut with a percentage of 5.6%. The technique of boiling the plant part will become water-soluble so that it is easily digested and consumed.

Likewise, the use of medicinal plants consists of several ways, namely drinking, sticking, and eating. The data can be seen in Figure 7.

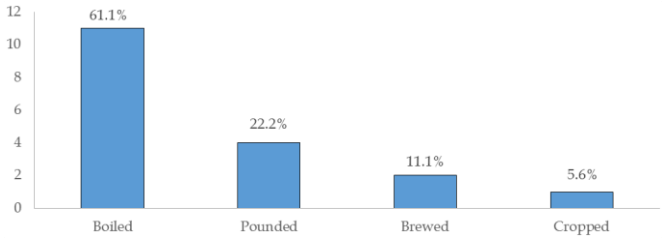

Figure 6. Percentage of plant processing methods

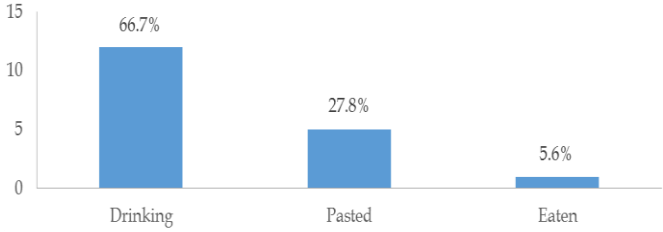

Figure 7. Percentage of ways to use plants

From Figure 7, it is known that the most widely used way of using medicinal plants is by drinking which has a percentage of 66.7% and the least used is by eating directly which has a percentage of 5.6%.

Based on the results of research conducted in Sepangah Village, it shows that there are 13 diseases that still use medicinal plants in the healing process, especially in reproductive health. The most common disease using medicinal plants is to treat vaginal discharge and smooth postpartum blood in mothers after childbirth. The number of plants used each consists of 8 types of plants. Treatment of vaginal discharge uses turmeric, ginger, betel, cat whiskers, areca nut, cengkodok, kencur, and sambiloto. While to smooth the postpartum blood using turmeric, ginger, temulawak, kencur, sembung, asam kandis, galangal, and pepper.

According to Rustanti et al. (2020), vaginal discharge is excessive discharge from the vagina and is not menstrual blood. Vaginal discharge occurs because it is triggered by humid weather so it is easily infected with the Candida albicans fungus. In addition, it is also encouraged by the behavior of women in maintaining the cleanliness of reproductive organs (Ratna, 2010). Meanwhile, smooth postpartum blood occurs because aromatic compounds and oleoresins in medicinal plants used play a major role in healing related to care for mothers after childbirth which is efficacious in stopping bleeding (Peli et al., 2020).

The percentage results of the number of plants based on family (Figure 2), show that plants from the Zingiberaceae family are the most widely used. According to Lianah (2020), in Indonesia, the Zingiberaceae family is better known to the public as ginger-ginger plants which are used as spices and traditional medicines in the form of herbal medicine, cosmetic ingredients, and ornamental plants.

Habitus or life forms of medicinal plants used are mostly found in the form of herbs (Figure 3). Herbaceous habitus is found because it is easily available and cultivated around the yard. According to Hakim (2015), herbaceous plants are widely used because they have several parts of the plant that can empirically heal. The use of herbs is used in the world of health and as a maintenance of body vitality which is commonly used in developing and non-industrialized countries. This is because herbs are easily affordable compared to modern drugs which are relatively expensive.

Medicinal plants that are utilized by the community are mostly found in yard locations (Figure 4). According to Dwiratna (2016), the yard is the main means of conserving traditional medicine. This is because the yard is not only to create beauty and coolness but also has an economic and social role (Oktaviani & Hakim, 2013). The people of Sepangah Village prefer to cultivate medicinal plants around their residences so that they are more easily available when needed. Cultivation is included in conservation efforts to utilize biodiversity. The diversity of medicinal plant species for reproductive health shows that the surroundings of Sepangah Village are still rich in biodiversity. However, until now this wealth has only been utilized and preserved directly by the people who live around it.

The rhizome part is the most widely used in medicinal plants for reproductive health (Figure 5). This is because it generally has high active substances, namely antimicrobial properties derived from essential oil content (Sharifi-Rad et al., 2017). According to Donga et al. (2020) all plant parts are recognized as having therapeutic properties and have been used to treat various diseases. Each plant part has great potential to be used as an antimicrobial, antioxidant, and anticancer.

The most common way of processing medicinal plants used by the community is by boiling (Figure 6). This is related to the level of community knowledge about medicinal plants for reproductive health which is generally obtained from generation to generation and only based on experience and daily life. According to Cahyawati (2019), processing by boiling is an easy and very influential way because it is very easy to enter the medicinal liquid into the body and is immediately digested by the body.

Likewise, the way to use medicinal plants that are more widely used by the community is by drinking (Figure 8). This is because the active compounds contained in plants are boiled. Use by drinking will be very easily digested by the body so as to facilitate the performance of drugs consumed (Loresa & Yusro, 2023).

Figure 8. Use of medicinal plants

The people of Sepangah Village do not know the active compound content of the plants used by them but from the results of the study, it was found that the plants used had phytochemical content. This is in line with research conducted by Rohyani et al. (2015) which states that plants produce phytochemical content with secondary metabolite compounds that play an active role in preventing disease. As an example, this study uses ginger (*Zingiber officinale* Rosc.) and turmeric (*Curcuma longa* Linn.) (Figure 9) plants that are useful for treating vaginal discharge and improving blood circulation in mothers after childbirth because they contain phytochemical compounds in the form of saponins, steroids, flavonoids, and polyphenols (Santoso et al. 2017).

Figure 9. Ginger and turmeric plants

The people of Sepangah Village still preserve traditional medicine to overcome health problems by utilizing medicinal plants around their place of residence. The utilization of plants as traditional medicine continues to develop along with the development of community culture. In addition, what is unique about this research is that it teaches people to recognize medicinal plants and their preservation. This is an effort to anticipate the influence of globalization that can erode culture from generation to generation in the use of medicinal plants.

Conclusion

Of the 18 species and 11 families obtained. The most widely used family is the family of Zingiberceae. The type of disease that most uses medicinal plants in the healing process is to treat vaginal discharge and smooth postpartum blood in mothers after childbirth.

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Author Contributions
Hestri Sastia Fardana: methodology, data collection, draft preparation, discussion, and conclusion; Syamswisna and Anisyah Yuniarti data analysis, reference review, and sentence evaluation.

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Conflicts of Interest
The authors declare no conflict of interest.

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