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Ethnobotic Study Of Medicinal Plants In Suranadi Village, West Lombok Regency

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Abstract. Ethnobotany is an interaction between society and its environment, specifically referring to plants and the study of their utilization. The purpose of this study was to determine the types of medicinal plants utilized by the community in Suranadi Village. Data collection through in-depth interviews to obtain information about the types of medicinal plants used and direct observation in the field. Based on the results of the study, 47 plant species from 33 families were obtained that were utilized as traditional medicine. The most numerous family is Zingiberaceae with a percentage of 9%. The most widely utilized part of the plant is the leaves as much as 53%. Plant habitus is dominated by herbs as much as 32%, and the status of plants used as medicine is mostly cultivated as much as 68% with the most common processing method, namely by boiling and then drinking.

Keywords: Suranadi Village; Medicinal Plants; Ethnobotany.

INTRODUCTION

Natural resources in Indonesia have been used as raw materials for making traditional medicines for generations. Traditional medicine is a concoction sourced from animals, plants, minerals, galenic or a mixture of these ingredients (Minister of Health Regulation Number 6 of 2016 Concerning Formalarium of Original Indonesian Medicines., 2016). Traditional medicine based on local wisdom is an effective, efficient, safe and economical method (Slamet & Andarias, 2018).

Local wisdom is the behavior and interaction between local people and their environment. Local wisdom can be understood, taught, practiced, and passed down to each generation. Each region has different needs and challenges so that local wisdom in each region is also different, efforts to always maintain survival produce various knowledge about interactions with the environment and society (Widiarti et al., 2016). The development of local knowledge is based on experience, its use has been practiced for generations, and is adapted to the local culture and environment (Odorlina, R., & Harianja, 2014). Belian Sasak or commonly known as shamans or traditional healers are people who are able to mix plants into medicines in traditional medicine (Alia, 2022). The ability to mix this medicine is an ancestral heritage, but along with the times, advances in technology and modern medicine have an impact on the decline in the number of belian or healers, this can cause erosion of knowledge regarding the use of medicinal plants (Tarigan et al., 2022). Documentation of belian knowledge in mixing or concocting plants into medicines needs to be done so that the knowledge they have can survive for the next generations.

Suranadi Village is located in Narmada District, West Lombok Regency, West Nusa Tenggara Province. There is a Nature Tourism Park (TWA) in Suranadi Village, a forest that is still preserved in its natural state. Suranadi Nature Tourism Park was established based

on Decree of the Minister of Agriculture No. 646/Kpts/Um/10/76 dated October 15, 1976 with an area of 52 hectares (West Lombok Regent Regulation No. 41 of 2016 concerning Tourism Village Areas, 2016). Suranadi TWA has high natural potential, rich in various types of plants and animals (Robi et al., 2019). Currently, there has been no research related to ethnobotanical studies in the Suranadi Village community, so this research is important to do. It is hoped that this research can be used as a basis for preserving ethnobotanical heritage, as well as developing knowledge and practices of its use, especially in Suranadi Village and other areas in general. This study aims to determine the types of medicinal plants utilized by the Community in Suranadi Village as well as their use as scientific information material in developing research and utilization of medicinal plants for cultural preservation.

RESEARCH METHOD

Location and Time

This research was conducted in May-June 2024, located in Suranadi Village, Narmada District, West Lombok Regency, West Nusa Tenggara Province with an area of 83,059 Ha in Suranadi Village (Figure 1).

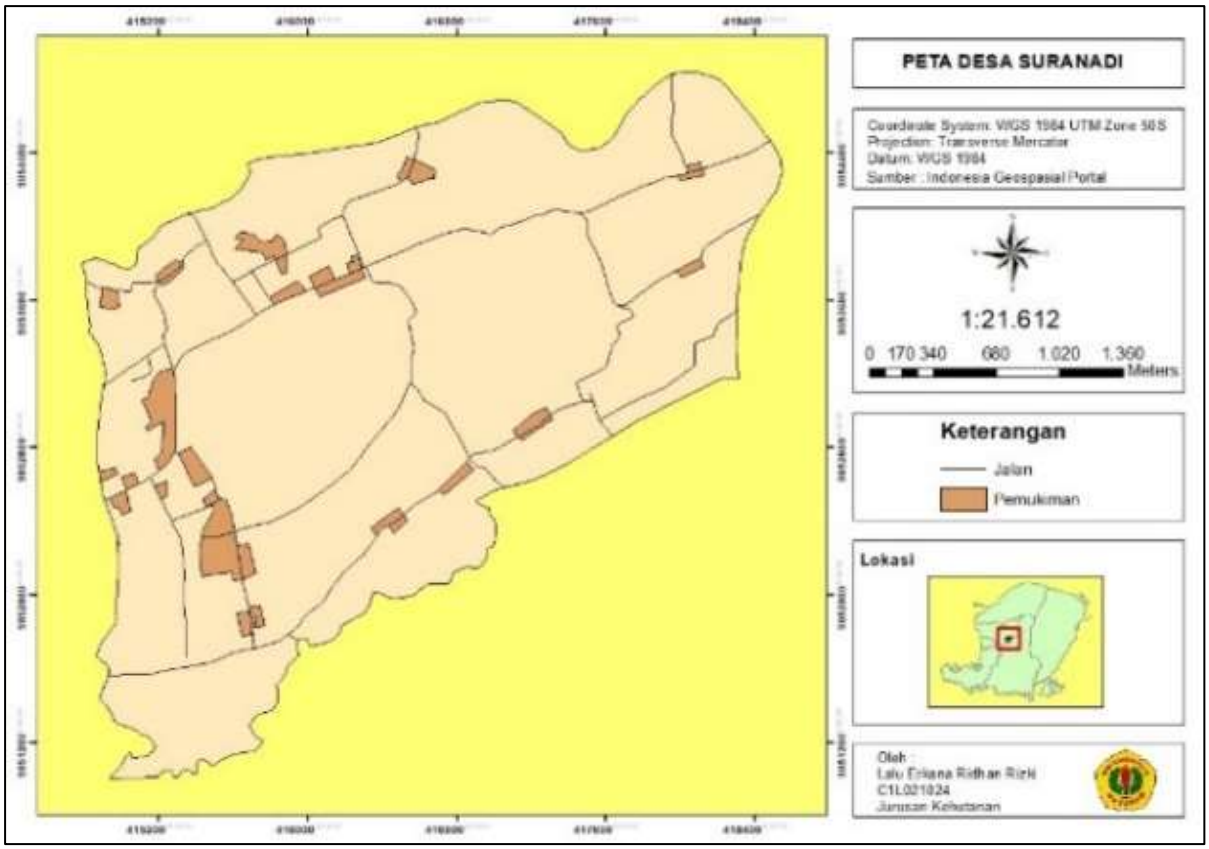

Figure 1. Research Location Map

Tools and Materials

The tools used in this study were stationery, plant identification books, cameras, voice recorders, and questionnaires. The materials used were plants that have the potential to be used as medicine from information from the people of Suranadi Village, Narmada District, West Lombok Regency, West Nusa Tenggara Province.

Research Design

Data collection was carried out using interview techniques and direct observation in the field (Rahayu et al., 2016). Interviews were conducted with people who could provide

accurate information and were knowledgeable about the environment and the diversity of medicinal plants. Determination of respondents was carried out by purposive sampling, namely determination based on criteria that match the objectives of the study (Lenaini, 2021).

Respondent criteria include indigenous residents of Suranadi Village who know or utilize useful types of plants and medicinal practitioners (healers or belian). Determination of the number of respondents was carried out using the Slovin formula. In using the Slovin formula, the number of samples must be representative. The provisions of the Slovin formula are based on the percentage of error tolerance (e), namely 0.1 (10%) for large populations and 0.2 (20%) for small populations. The range of samples that can be drawn using the Slovin formula ranges from 10% -15% (Yunita, 2020). The population of heads of families in Suranadi Village is 1,968, the error tolerance value used to determine the number of samples is 15% then the calculation results are rounded to achieve conformity, so that the total respondents in this study were 44 respondents. Based on the results of observations, there were 5 respondents who were medicinal practitioners (healers or belian), 17 respondents who were farmers, and 22 respondents who were housewives. Interviews with respondents were conducted using a questionnaire, each type of plant mentioned by the respondent was recorded by its local name, the part used, the disease treated, how to use it, the preparation method, how to process it and its use whether it was single or mixed with other ingredients, then the scientific name identification was carried out on the plant data obtained.

Data Analysis

The interview data with respondents were tabulated and analyzed descriptively (Hadi et al., 2023). The tabulation results were then used as a basis for obtaining the percentage of the number of families, habitus, parts used, and plant status, calculated based on the following equation (Susanti et al., 2018).

1. Family Percentage (PF)

Medicinal plants are grouped according to family, then the percentage is calculated based on the formula:

$$\text{PF} = \frac{\sum \text{species of a particular family}}{\sum \text{all species}} \text{x}100\%$$

2. Habitus Percentage (PH)

Plant habitus generally includes shrubs, bushes, lianas, palms, herbs, epiphytes, and trees (Susanti et al., 2018). The habitus of medicinal plants is calculated to determine the habitus that has the highest percentage as a medicinal plant, calculated based on the formula:

$$\textbf{Habitus Percentage} = \frac{\sum \text{certain habitus species}}{\sum \text{all species}} \text{x}100\%$$

3. Percentage of Parts Used (PB)

The parts of medicinal plants used include leaves, fruits, roots, stems, sap, bark, and rhizomes. The percentage is then calculated based on the formula:

$$\textbf{Percentage of Parts Used} = \frac{\sum \text{certain parts}}{\sum \text{all parts}} \text{x}100\%$$

4. Plant Status Percentage (PS)

Plant status percentage is an analysis conducted when plants are found, species status is categorized as cultivated plants or wild plants. Plant status can be calculated based on the formula**:**

$$\textbf{Plant Status Percentage} = \frac{\sum \text{cultivated species}}{\sum \text{all species}} \text{x}100\%$$

RESULT AND DISCUSSION

Diversity of Medicinal Plants

Indonesia has tropical forests containing 30,000 plant species, but only around 9,600 species have been identified as medicinal plants. Parts of plants used for medicine include roots, stems, bark, leaves, flowers, fruits, seeds and sap (Suliartini et al., 2023). According to (Sarno, 2019) medicinal plants are types of plants that are efficacious as medicine, used to cure diseases or prevent disease. The results of the study showed that there were 33 families and 47 species of medicinal plants used by the community, the percentage of medicinal plant families varied, indicating that the distribution of medicinal plants in Suranadi Village was quite diverse. Several types of medicinal plants used can be seen in (Figure 2).

Figure 2. Several plants used by the people of Suranadi Village (A) Sida rhombifolia (B) Jatropha curcas L. (C) Centella Asiatica (Linn.) Urb. (D) Phyllanthus amarus (E) Strobilanthes crispus (F) Laurentia longiflora (L) (G) Stachytarpheta jamaicensis (L.) Vahl

The diversity of medicinal plants in Suranadi Village is dominated by the Zingiberaceae family with 4 species and a percentage of 9%, the plants include Curcuma domestica, Zingiber cassumunar, Alpinia galanga (L.) Willd, and Zingiber officinale Roscoe. The high utilization of the Zingiberaceae family is due to its many benefits. The Zingiberaceae family has been scientifically proven to be an antioxidant, anti-cancer, and anti-bacterial (Tarigan et al., 2022). The second family that is widely used as a medicinal plant is Piperaceae which has 3 species with a percentage of 6%, the plants include Piper nigrum L, Piper betle L, and Piper retrofractum Vahl. Furthermore, the lowest percentage of families as medicinal plants is obtained from several families with a percentage of 4% which amount to 2 species in each family, for example the Acanthaceae, Asparagaceae, Malvaceae, Annonaceae, Lamiaceae, Euphorbiaceae, Solanaceae families, plants such as Strobilanthes crispus, Andrographis paniculata. Families with a percentage of 2% with a number of 1 species of plants in each family include the Liliacea, Verbenaceae, Apiaceae, Rubiceae, Muntingiacea, Sphenocleaceae, Convolvulaceae families, plants such as Stachytarpheta jamaicensis (L.) Vahl and Centella Asiatica (Linn.) Urb. The classification of species based on family can be seen in (Figure 3).

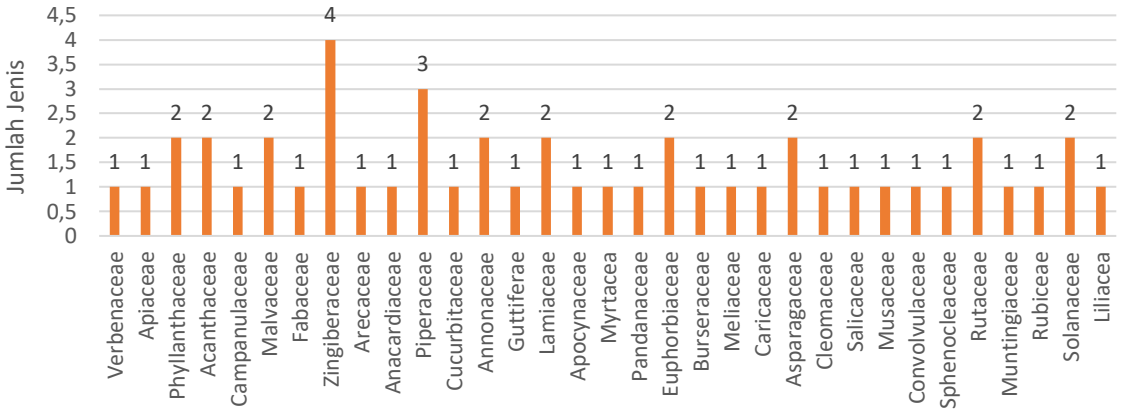

Figure 3. Classification of species based on family

Diversity of Habitus

Plants have a diversity of habitus types. There are 6 types of plant habitus at the research location, namely trees, herbs, shrubs, bushes, palms and lianas. Herbaceous habitus is the most widely used type with 15 species with a percentage of 32%, followed by plants with tree habitus with 14 species with a percentage of 30%, shrubs with 8 species with a percentage of 17%, bushes with 5 species with a percentage of 11%, palms with 1 species with a percentage of 2% and lianas with 4 species with a percentage of 9%. Herbaceous habitus is most widely used as a medicinal plant because of its ability to grow in various locations (Hadi et al., 2023). In line with the statement (Mingga et al., 2019) herbaceous habitus is easy to plant, grows quickly, does not require a lot of land and can be planted in the yard. The complete percentage of habitus diversity can be seen in (Figure 4).

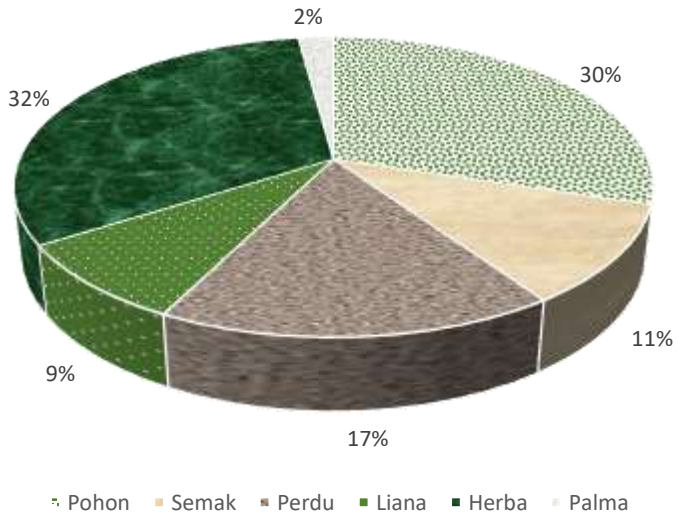

Figure 4. Percentage of plant habitus utilized

Diversity of Parts Used

The legacy of the use of plants as medicine has been used almost all over the world, not only for certain groups. The parts of the plant used for traditional medicine are the

entire plant or only certain parts such as leaves, stems, bark, fruit, seeds, flowers, roots, and rhizomes. The most widely used parts of the plant are leaves with 29 uses with a percentage of 53%, bark with 4 uses with a percentage of 7%, flowers with 5 uses with a percentage of 9%, fruit with 4 uses with a percentage of 7%, seeds with 2 uses with a percentage of 4%, rhizomes with 5 uses with a percentage of 11%, tubers with 2 uses with a percentage of 4%, all parts of the plant with 2 uses with a percentage of 4% and the least is the stem with 1 use with a percentage of 2%. The complete percentage of diversity of parts used can be seen in (Figure 5).

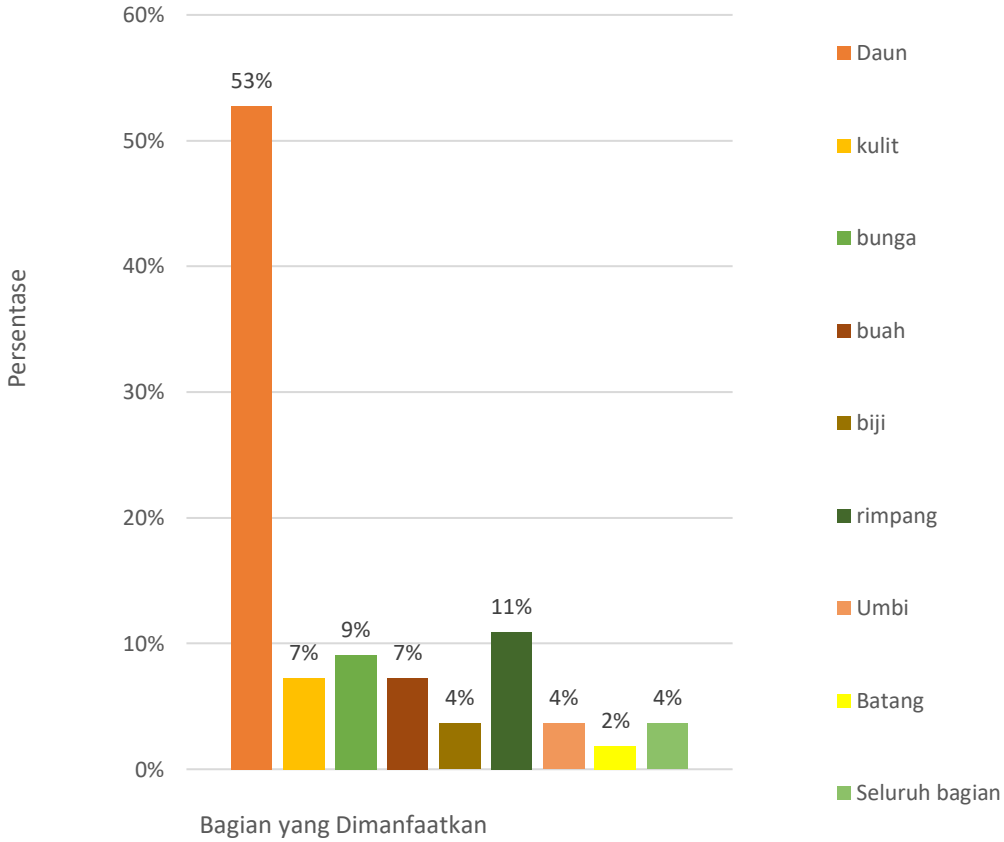

Figure 5. Percentage of plant parts used by the Suranadi Village community

Leaves are the part that is widely used, because leaves are a place for processing plant nutrients, are easy to obtain and process and their use does not damage plants (Susanti et al., 2018).

Diversity of Cultivated or Wild Types

Based on the results of the study, the types of medicinal plants are grouped based on their status, namely cultivated plants or wild plants (Hadi et al., 2023). Cultivated plants are plants that are planted intentionally for certain purposes and preservation. Cultivated medicinal plants also come from wild plants, but generally cultivated medicinal plants have higher vitamin and mineral nutritional content than medicinal plants that grow wild, this is because cultivated medicinal plants are given special care, while wild medicinal plants are not given special care (Susanti et al., 2018). (Figure 6) shows that most of the medicinal plants found have cultivated status.

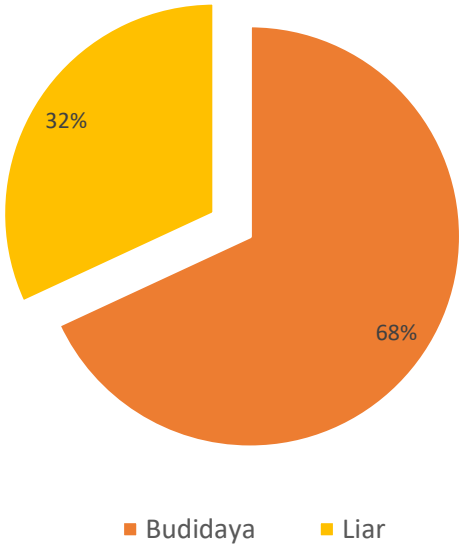

Figure 6. Percentage of plant status utilized

Generally, these types of plants are intentionally kept in the yard, for example: pandan, sage, galangal, ginger, turmeric, bay leaves and sambilito. These plants are cultivated because of their properties as medicine and other uses such as food seasonings. In addition, other plants are cultivated as ornamental plants or hedge plants such as jarak, kacibeling, sidaguri and kenanga.

Efficacy of Medicinal Plants

Based on the results of the study, medicinal plants used by the people of Suranadi Village have various efficacies. There are 47 types of medicinal plants that are utilized with 31 types of uses to treat diseases as seen in (Figure 7). The concoction method is carried out in various ways, for example, boiled, eaten directly, pounded, burned, scrubbed, dripped, and others.

The processing method by boiling then drinking is the most frequently used for internal medicine, for example, the leaves of the kecibeling plant (Strobilanthes crispus) are boiled then the boiled water is drunk, its efficacy is to treat kidney stones and urinary stones. Diseases or wounds on the outside of the body are treated by applying or attaching crushed plant parts to the affected body part, the plants used, for example, the leaves of the sambiloto plant (*Andrographis paniculata*) are pounded then smeared on the injured body part.

There are also medicinal ingredients that are used by eating the plant parts directly, for example, mahogany seeds (Swietenia mahagoni) are used for malaria medicine, they are used by inserting mahogany seeds into bananas and eating them directly. For stomach ulcers, sweet potato plants (Ipomea batatas Lamk.) are used by burning them and eating them directly. Furthermore, for internal heat medicine, horseshoe plants (*Centella Asiatica*) are used by juicing them or eating the leaves directly. Another way to utilize medicinal plants is by dropping them, for example, the use of the flowers of the kitolod plant (*Laurentia longiflora* (L). dipped in water then dropped in the eyes can cure eye pain.

Based on research that has been done, there is no standard dose size used by the believers, the dose used in concocting medicine is in accordance with the provisions used by each believer who prepares the medicinal plants. Most treatment methods use a single

plant part. There are several diseases that use a mixture of several types of plants, for example, for medicine for shortness of breath, castor leaves (Jatropha curcas L.) are used which are mixed with betel leaves, andong leaves, garlic, pepper and turmeric then all are pounded then applied to the chest area that is tight. For medicine for lung disease, the rhizome of the bangle plant (Zingiber cassumunar) is used which is grated then mixed with boiled inggu leaves and lime juice then drunk. The use of other additional ingredients such as palm sugar or soy sauce is done in several medicinal concoctions, this aims to reduce the sour or bitter taste of the medicinal plants used.

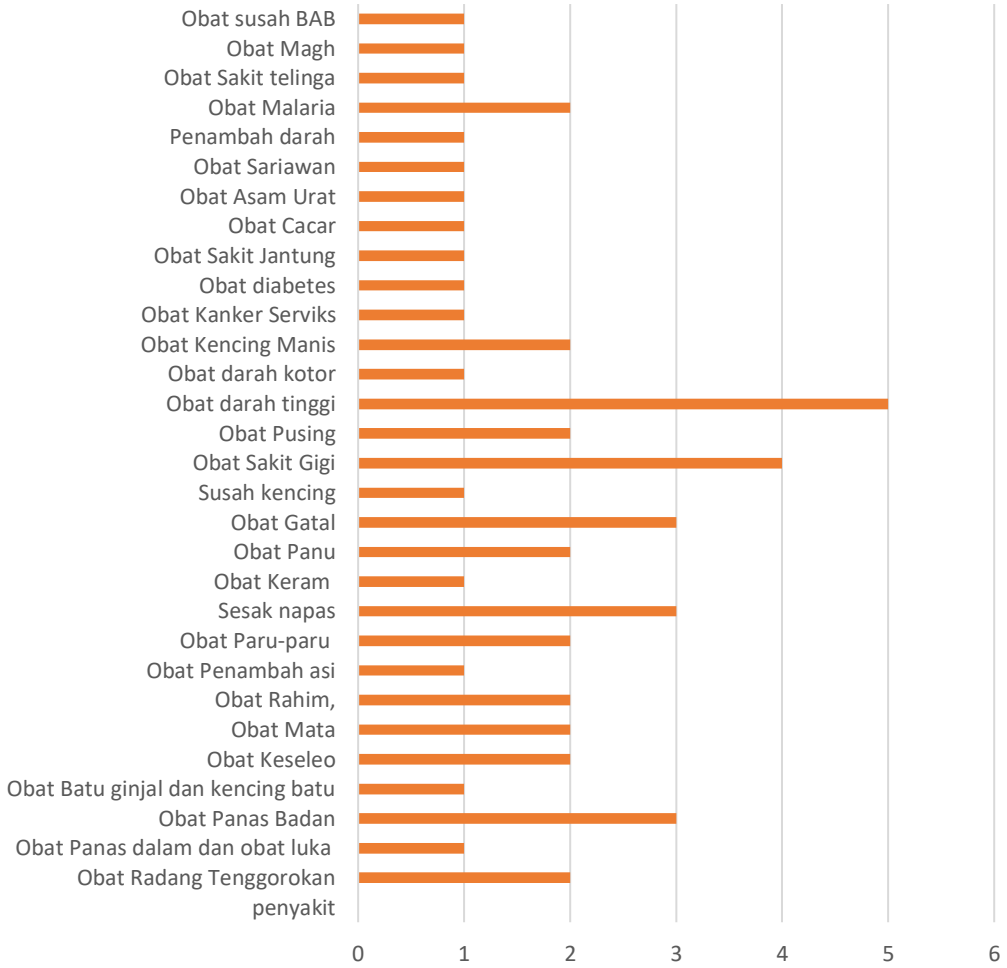

Figure 7. Classification of medicinal plant species based on their use groups.

Another phenomenon found based on the results of the study is that there are the same parts of different plants that can be used to treat the same type of disease, for example pandan leaves (Pandanus amaryllifolius), banana leaves (Musa paradisiaca L.), cherry leaves (Muntingia calabura) and coffee leaves (Coffea canephora) are used to treat high blood pressure. In addition, there are also different parts of the same plant for different diseases, for example the castor plant (Jatropha curcas L.) the leaves are used to treat sore throats and shortness of breath, the sap can be used for toothache medicine. In addition, there are also parts of the same plant that are used to treat different diseases, for example the bitter melon plant (Momordica charantia) the bark is used to treat itching by boiling it and then using it for bathing and for dirty blood medicine by boiling it and then drinking it.

CONCLUSION

Ethnobotany research conducted in Suranadi Village, especially by Belian, has obtained data that there are 47 species of plants that are used as medicine. However, there is still a possibility that there are other types of medicinal plants that have not been exposed. Plant habitus is dominated by herbs, with leaves as the most widely used part of the plant, the most common way of processing is boiling and drinking. Some plants are cultivated because of other benefits from the plant besides being a medicine, also as an ingredient or cooking spice and ornamental plants or hedge plants.

REFFERENCES

Alia, M. N. (2022). BELIAN SASAK DI TENGAH PENGOBATAN MODERN Mirna. *Jurnal Pendidikan Sosiologi*, *1*(1).

Hadi, M. A., Latifah, S., Aji, I. M. L., Valentino, N., & Prasetyo, A. R. (2023). Keanekaragaman Jenis Tumbuhan Obat di Hutan Kemasyarakatan Wana Lestari Desa Karang Sidemen. *Journal of Forest Science Avicennia*, *06*(37), 26–38. https://doi.org/10.22219/avicennia.v6i1.21715

Lenaini, I. (2021). Teknik Pengambilan Sampel Purposive Dan Snowball Sampling. *HISTORIS: Jurnal Kajian, Penelitian & Pengembangan Pendidikan Sejarah*, *6*(1), 33–39.

Mingga, M., Oramahi, H. A., & Tavita, G. E. (2019). Pemanfaatan Tumbuhan Obat Oleh Masyarakat Di Desa Raba Kecamatan Menjalin Kabupaten Landak. *Jurnal Hutan Lestari*, *7*(1), 97–105. https://doi.org/10.26418/jhl.v7i1.31005

Odorlina, R., & Harianja, A. (2014). Faktor–Faktor Yang Mempengaruhi Kearifan Lokal Peemanfaatan Obat-Obatan Tradisional oleh Etnik Karo. *Balai Penelitian Kehutanan Aek Naul*, 40–53.

Peraturan Bupati Lombok Barat No. 41 tahun 2016 tentang Kawasan Desa Wisata. (2016).

Peraturan Menteri Kesehatan Nomor 6 tahun 2016 tentang Formalarium Obat Asli Indonesia. (pp. 139–141). (2016).

Rahayu, M., Rustiami, H., & . R. (2016). Ethnobotanical Study of Sasak Ethnic, East Lombok, West Nusa Tenggara. *Journal of Tropical Biology & Conservation (JTBC)*, *13*(January), 85–99. https://doi.org/10.51200/jtbc.v13i0.399

Robi, Y., Kartikawati, S. M., & Muflihati, . (2019). Etnobotani Rempah Tradisional Di Desa Empoto Kabupaten Sanggau Kalimantan Barat. *Jurnal Hutan Lestari*, *7*(1), 130–142. https://doi.org/10.26418/jhl.v7i1.31179

Sarno, S. (2019). Pemanfaatan Tanaman Obat (Biofarmaka) Sebagai Produk Unggulan Masyarakat Desa Depok Banjarnegara. *Abdimas Unwahas*, *4*(2), 73–78. https://doi.org/10.31942/abd.v4i2.3007

Slamet, A., & Andarias, S. H. (2018). Studi Etnobotani dan Identifikasi Tumbuhan Berkhasiat Obat Masyarakat Sub Etnis Wolio Kota Baubau Sulawesi Tenggara. *Proceeding Biology Education Conference*, *15*(1), 721–732.

Suliartini, N. W. S., Anwar, A. M., Ansori, A. A., Putri, B. R. L., Widiawati, B., Syahputra, D., Febrian, E., Amal, I. I., Diniatun, M., Mitchell, S. L., & Yanti, Y. K. (2023). Eksplorasi Dan Identifikasi Jenis Tumbuhan Obat Di Desa Wisata Kebun Kopi Senaru Sebagai Informasi Dasar Dalam Pengembangan Wisata Tanaman Obat. *Jurnal Abdi Insani*, *10*(2), 1168–1182. https://doi.org/10.29303/abdiinsani.v10i2.970

Susanti, A., Wijayanto, N., & Hikmat, A. (2018). Keanekaragaman jenis tumbuhan obat di agroforestri repong damar krui, provinsi lampung. Media Konservasi. 2018 Aug 1;23(2):162-8. *Media Konservasi*, *23*(2), 162–168.

Tarigan, R. F., Yusro, F., Arbiastutie, Y., & Mariani, Y. (2022). Identifikasi Tumbuhan Obat dan Pemanfaatannya oleh Battra di Desa Doulu Kabupaten Karo. *Bioscientist : Jurnal Ilmiah Biologi*, *10*(2), 631. https://doi.org/10.33394/bioscientist.v10i2.5379

Widiarti, A., Bachri, A. A., & Husaini, H. (2016). Analisis Pengaruh Faktor Perilaku Terhadap Pemanfaatan Kearifan Lokal Sebagai Obat Tradisional Oleh Masyarakat Di Kota Palangka Raya. *Jurnal Berkala Kesehatan*, *2*(1), 30. https://doi.org/10.20527/jbk.v2i1.4842

Yunita, N. (2020). Faktor-Faktor Yang Mempengaruhi Kualitas Layanan Website Bank Syariah Terhadap Perolehan Informasi Nasabah (Studi Bni Syariah Kota Bogor). *Nisbah: Jurnal Perbankan Syariah*, *6*(1), 30. https://doi.org/10.30997/jn.v6i1.1886