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Comparative Study Of Ethnobotany Of Medicinal Plants In Three Traditional Markets In West Sumatra

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Abstract – Every traditional medicine practitioner in West Sumatra has the same way of using medicinal plants and some have different ways. Traditional medicine practitioners have their own ways of using medicinal plants based on the knowledge they have gained. The research method used was a survey conducted using an ethnobotanical approach through free, semi-structured, in-depth interviews and participatory observation. Interviews were conducted with 1 traditional medicine traders in each market. The survey locations were Padang City Market, Pariaman City Market and Solok City Market. The target respondents were traditional medicine traders who brought their merchandise when the survey activity was carried out. The data collected includes the local name, method of use, dosage used, processing as medicine, and type of disease treated. 25 plant families have ethnobotanical value as medicinal plants with a total of 42 species. The Zingiberaceae family is the most widely sold, with 8 species, accounting for 19%. The organs used for making medicine are mostly 30% leaves. The most widely used plant habit is herbaceous, namely 60%. The most common way of using medicinal plants is by drinking, namely 76%.

Keywords – Traditional Markets, Ethnobotany, Medicinal Plants.

I. INTRODUCTION

One of the local wisdoms that exist in society is traditional markets. According to Presidential Decree No. 112 of 2007, traditional markets are markets built and managed by the Government, Regional Government, Private, State-Owned Enterprises and Regional-Owned Enterprises including collaboration with the private sector with business premises in the form of shops, kiosks, stalls and tents owned /managed by small, medium, community-based traders or cooperatives with small scale businesses, small capital and with a process of buying and selling merchandise through bargaining (Pramudoyo, 2014). Sujarwo et al., (2018) stated that the trade process makes traditional markets able to become a "pool of traditional knowledge" for various local wisdoms that develop in society, including the use of plants.

The study of local people's knowledge of botany is called ethnobotany. This knowledge revolves around the use of plants by the people around them (Kandowangko, 2011). There are many types of flora that are diverse and also have their own value for the people of West Sumatra, such as plants that are used as cooking spices, cultural equipment and traditional medicine. Many types of plants are bought and sold in traditional markets in West Sumatra. Several traditional markets in West Sumatra include Padang City Market, Pariaman Market and Solok Market. In these three markets there are also several traders selling traditional medicine. Some drug dealers know how to use it and some don't.

For the people of West Sumatra, there are many ways to use medicinal plants. In use, some use all plant organs and others only use certain parts of the organ. The presentation is also similar, such as boiling, smearing and so on. One type of medicinal plant can treat several diseases and one type of medicine can only treat one type of disease (Utami et al., 2019). In an interview in one area in West Sumatra, the people of West Sumatra used medicinal plants to treat fever, flu and coughs (Nasir,

2021). In West Sumatra there are also several plants that are used as medicine for reproductive system complaints (Sa'roni, 2012). So there are various kinds of traditional medicines and how to use them in the people of West Sumatra.

In the practice of using medicinal plants, there are differences in the way people in West Sumatra use medicines depending on the region and the community's own knowledge. Every traditional medicine practitioner in West Sumatra has the same way of using medicinal plants and some have different ways. Traditional medicine practitioners have their own ways of using medicinal plants based on their knowledge.

Based on the description above, information is needed regarding the diversity of plant species and their use by the people who live in an area as traditional medicinal plants. Information about the diversity and use of certain plant species was obtained from traditional medicine traders in the market area.

Based on the description above, research will be carried out on a comparative study of ethnobotanical studies of medicinal plants in three traditional markets in West Sumatra (Pasar Raya Padang City, Pasar Pariaman and Pasar Solok). It is hoped that this research can provide knowledge and information in ethnobotanical studies based on local community wisdom.

II. RESEARCH METHODOLOGY

The research method used was a survey conducted using an ethnobotanical approach through free, semi-structured, in-depth interviews and participatory observation (Silalahi, 2020). Interviews were conducted with all 1 traditional medicine traders in each market. The survey locations were Padang City Market, Pariaman Market and Solok Market. The target respondents were traditional medicine traders who brought their merchandise when the survey activity was carried out. Data collected includes the local name, organ/part used, method of use, dose used, processing as medicine, and type of disease treated. Data analysis was carried out descriptively. The medicinal plants obtained were collected, unknown plant species were identified in the ANDA Herbarium, Andalas University.

The data obtained was analyzed as follows:

1. Types of medicinal plants found in three markets in West Sumatra Province.

To determine the type of medicinal plant obtained in the field, an identification process was carried out using several pieces of literature as a reference, equating the herbarium specimen, namely the character of the identified specimen object with the character of the herbarium specimen.

2. Percentage and explain how to use medicinal plants, habitus of medicinal plants, how to use medicinal plants and the number of diseases treated.

To calculate the percentage, the following formula is used:

$$Percentage\ of\ medicinal\ plant\ species = \frac{\sum types\ of\ medicinal\ plant}{\sum all\ types\ of\ medicinal\ plamt} \times 100\%$$

$$Percentage\ of\ medicinal\ plant\ organs = \frac{\sum types\ of\ medicinal\ plant\ organs}{\sum all\ tipes\ of\ medicinal\ plant\ organs} \times 100\%$$

$$Percentage\ of\ medicinal\ plant\ habitus = \frac{\sum \begin{matrix} habitus\ of \\ medicinal\ plant\ species \end{matrix}}{\sum \begin{matrix} all\ types\ of\ medicinal \\ plant\ habitus \end{matrix}} \times 100\%$$

$$Percentage\ of\ how\ to\ use\ medicinal\ plants = \frac{\sum how\ to\ use\ one\ type\ of\ medicinal\ plant}{\sum all\ the\ ways\ to\ use\ one\ type\ of\ medicinal\ plant} \times 100\%$$

III. Result And Discussion

In this research, the documentation obtained was 42 species of medicinal plants with ethnobotanical value which were traded in three traditional markets in West Sumatra. The fifty-seven types of medicinal plants belong to 25 families. The most widely used family of medicinal plants is Zingiberaceae, with 8 species. Rutaceae, Poaceae each numbering 4 species. Myrtaceae, Apiaceae each numbering 3 species. Solanaceae, Acanthaceae, Phyllanthaceae, Liliaceae, Acoraceae, Alliaceae, Piperaceae, Arecaceae, Lauraceae, Crassulaceae, Moringaceae, Asteraceae, Annonaceae, Malvaceae, Rubiaceae, Lamiaceae, Cucurbitaceae, schisandraceae, Apocynaceae, Convolvulaceae each with 1 species. The types of medicinal plants can be seen in Table 1. A comparison of the number of families and the number of species can be seen in Figure 2 and Figure 3.

Table 1: Sample of Padang City Market, Solok City market, Pariaman City market

No	Famili	Pasar Raya Kota Padang (Spesies)	Pasar Kota Solok (Spesies)	Pasar Kota Pariaman (Spesies)	Jumlah Spesies
1	Acanthaceae	*Adrographis paniculata Nees*	-	*Adrographis paniculata Nees*	1
2	Acoraceae	-	*Acorus calamus. L*	*Acorus calamus. L)*	1
3	Alliaceae	-	*Allium sativum. L*	- - *Allium sativum*	1
4	Annonaceae	*Annona muricata. L*	-	-	1
5	Apiaceae	-	*Coriandrum sativum. L*	- *Centella asiatica* *Pimpinella anisum.* I	3
6	Apocynaceae	-	*Alyxia reinwardtii*	-	1
7	Arecaceae	-	*Areca catechu. L*	*Areca catechu. L*	1
8	Asteraceae	*Gynura procumbens* Lour	-	-	1
9	Convolvulaceae	-	-	*Ipomea pes-tigridis*	1
10	Crassulaceae	*Kalanchoe pinnata*	-	-	1
11	Cucurbitaceae	-	*Benincasa hispida*	-	1
12	Lamiaaceae	*Mentha piperita*	-	-	1
13	Lauraaceae	-	*Cinnamomum burmanni*	*Cinnamomum burmanni*	1
14	Liliaceae	-	*Eleutherine palmifolia. L*	*Eleutherine palmifolia. L*	1

15	Schisandraceae	-	*Illicium verum*	-	1
16	Malvaceae	*Hibiscus rosasinensi.* Linn	-	-	1
17	Myrtaceae	-	*Syzyngium polyantha* *Syzyngium aromaticum. L*	- *Myristica fragrans*	3
18	Moringaceae	*Moringa oleifera*	-	-	1
19	Phyllanthaceae	*Phyllanthus niruri. L*	-	*Phyllanthus niruri. L*	1
20	Piperaceae	-	*Piper betle.* Linn	*Piper betle.* Linn	1
21	Poaceae	*Imperata cilindrica* *Cymbopongon nardus. L* *Leersia hexandra* Sw	*Cymbopongo citratus*	*Cymbopongon nardus. L*	4
22	Rubiaceae	*Gardenia jasminoides Ellis*	-	-	1
23	Rutaceae	*Citrus microcarpa bunge*	*Citrus hystix* *Citrus microcarpa bunge* *Citrus aurantifolia* *Citrus amblycarpa*	-	4
24	Solanaceae	*Physalis angulata. L*	-	*Physalis angulata. L*	1

25	Zingiberaceae	*Boesenbergia rotunda .L* *Curcuma xanthorrhiza Roxb* *Curcuma zedoaria.* Rocs *Curcuma heyneana.* Val	*Zingiber offcinale* *Curcuma domestica.*Vahl	*Alpinia malaccensis* *Zingiber officinale* *Curcuma xanthorrhiza Roxb* *Curcuma domestica* Vahl *Curcuma zedoaria* Rocs *Kaempferia galanga. L*	8
Jumlah		18	20	19	42

Based on Table 1, this research shows that the use of plants for medicinal purposes is very high with 1 family, namely the Zingiberaceae family with 8 species, namely 19% (Figure 1). From several previous studies related to the ethnobotanical study of medicinal plants, the family The most commonly found is the Zingiberaceae family. Efremila. et. al. (2015) in their research stated that the family most widely used by the Dayak community in Kayu Tanam Village is the Zingiberaceae family with 4 types, namely ginger (Zingiber officenale), galangal (Kaemferia galanga), turmeric (Curcuma sp), and galangal (Alpinia galanga L). In other research, it is also stated that the plants most widely used as ingredients for traditional medicine by the Osing tribe are dominated by plant species from the Zingiberaceae family, including turmeric (Curcuma longa Linn) at 55% (Khotimah et al, 2018). In the survey results for each market, the family that was frequently found in each market was the zingiberaceae family.

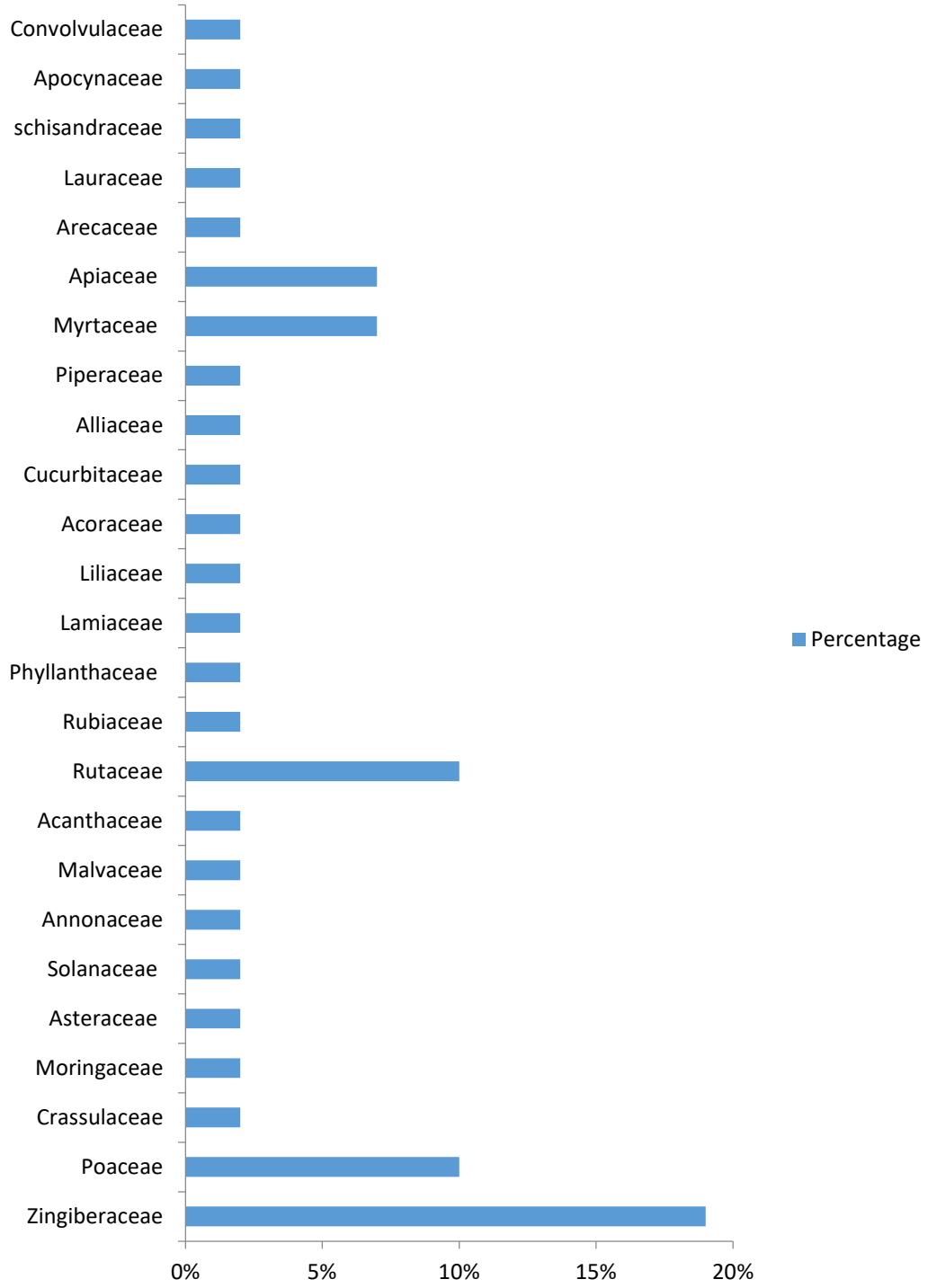

Figure 1. Percentage of the number of types of medicinal plants sold in three traditional markets in West Sumatra.

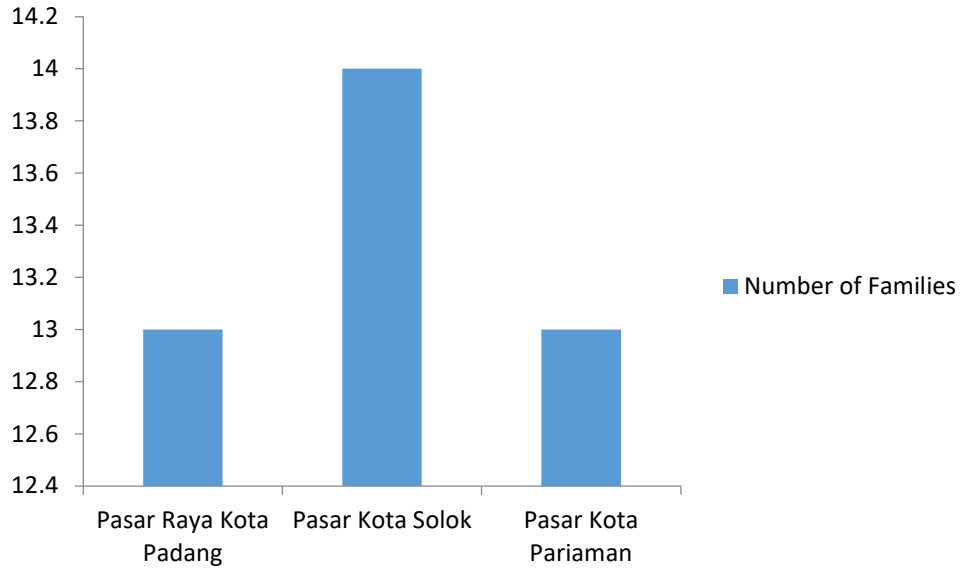

Figure 2. Comparison of medicinal plant families found in the three Pasar Raya Padang City, Solok City Market, and Pariaman City Market

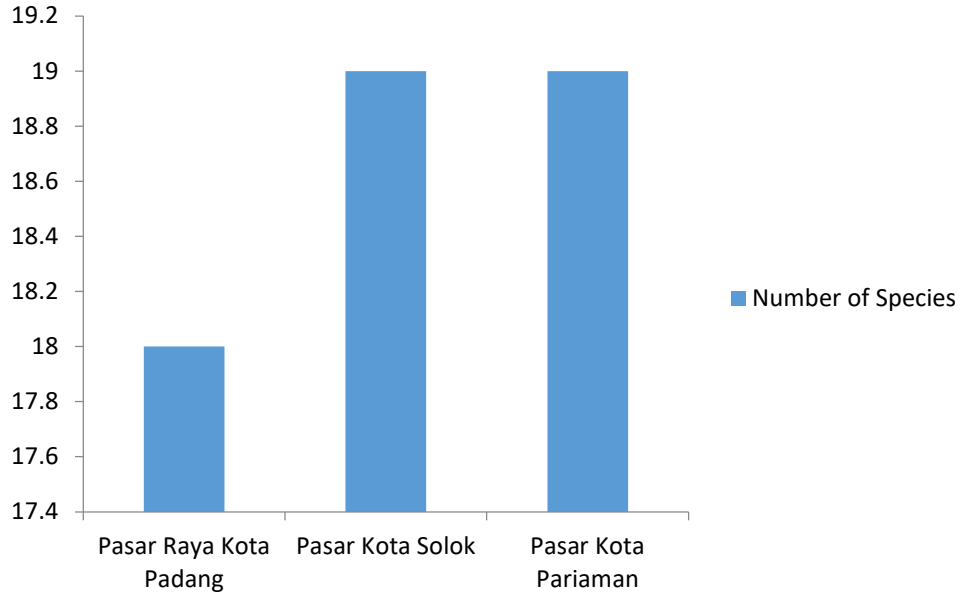

Figure 3. Comparison of the number of medicinal plant species found in Padang City Market, Solok City Market, and Pariaman City Market

These results show that medicinal plant traders have a high level of knowledge and understanding regarding the use of medicinal plants. It is estimated that it is influenced by the level of availability and diversity of natural plant resources which are quite diverse so that they are used continuously as traditional medicines.

The organs most widely used are leaves at 30%. The medicinal plant organs used are based on the results of surveys and interviews in three markets in West Sumatra, namely the most widely used organs in the Pasar Raya city of Padang are leaves at 33%. The most widely used organ in the Solok City Market is fruit at 45%. The most widely used organ in the Kota Pariaman Market is leaves at 30%.

The most common habitus found is herbaceous at 60%. The high percentage of herbaceous plants is because the types of plants with this habit are the plants most widely used in traditional medicine. because it has efficacy in treating several types of diseases. The habitus of medicinal plants used is based on the results of surveys and interviews in three markets in West Sumatra, namely the habitus of medicinal plants most commonly found in Pasar Raya Padang City is herbs at 59%. The most abundant habitus in the Solok City Market are herbs and trees at 47% each. The most common habitus found in the Kota Pariaman Market is herbs at 72%.

The most widely used method of using medicinal plants is by drinking, namely 76%. The method of using medicinal plants is based on the results of surveys and interviews in three markets in West Sumatra, namely the most common way of using medicines in Pasar Raya Padang City is by drinking, namely 85%. The method most widely used in the Solok City Market is by drinking, namely as much as 85%. The most widely used method in Kota Pariaman Market is drinking, namely 65%.

IV. Conclusion

This research succeeded in documenting 25 families of plants with ethnobotanical value of medicinal plants with a total of 42 species. The fifty-seven plant species are traded in three traditional markets in West Sumatra Province. The availability of plant species traded in the three traditional markets is thought to influence the level of community needs and the availability of medicinal plants. If you look at the diversity of medicinal plants being sold, Padang City Market has 13 families, Solok City Market has 14 families, and Pariaman City Market has 13 families. It can be concluded that Solok City Market has a higher level of medicinal plant diversity than Padang City Market and Pariaman City Market. The Zingiberaceae family is the most widely sold, with 8 species, accounting for 19%. Padang City Market sells the most Zingiberaceae with 4 species or 22%, Solok City Market sells the most Rutaceae with 4 species or 21%, and Pariaman City Market sells the most Zingiberaceae with 6 species or as much as 32%. The organs used for making medicine are mostly 30% leaves. Padang Daun City Market has 33%, Solok City Fruit Market has 45%, and Pariaman Leaf City Market has 30%. The most widely used plant habit is herbaceous, which is 60%. Padang City Market contains 59% herbs, Solok City Market contains 47% herbs and trees each, and Pariaman City Market contains 72% herbs. The most common way of using medicinal plants is by drinking, namely 76%. Padang City Market is 85% consumed, Solok City Market is 85% consumed, and Pariaman City Market is 61% consumed.

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References

[1]. Efremila, W.E., & Sisillia, L. (2015). Study on medicinal plants by Ethnic Dayak Tribe in the Kayu Tanam Village, Mandor Sub Regency, Landak Regency. Jurnal Hutan Lestari, 3(2)234-246.

[2]. Kandowangko, N., Solang, M., & Ahmad, J. (2011). Final Report: Medical Plants Ethnobotanical Study Of Medicinal Plants By The People Of Bonebolango District Gorontalo Province. Gorontalo: Gorontalo State University.

[3]. Khotimah, K., Nurchayati, N., & Ridho, R. (2018). Ethnobotanical Study Of Medicinal Plants Based On Local Knowledge Of The Osing Tribe Community In The Slippery Sub-District Of Bayuwangi. Jurnal Biosense, 1(01), 36-50.

[4]. Nasir, M. (2021). Use And Dissemination Of Knowledge About Medicinal Plants During The Covid-19 Pandemic In Nagari Salo, Baso Sub-District, Agam District, West Sumatra. Al-Ma'arif: Ilmu Perpustakaan dan Informasi Islam, 1(2), 135-147.

[5]. Pramudyo, A. (2014). Maintaning The Existence Of Traditional Markets In Yogyakarta. Jurnal Bisnis, Manajemen, dan Akuntansi, 2(1).

[6]. Sa'roni, S. R., & Nugroho, Y. A. (2012). Traditional Herb In West Sumatra And West Nusa Tenggara For Reproductive System Purposes. Media Penelitian Dan Pengembangan Kesehatan, 22(3 Sep).

[7]. Silalahi, M., Supriatna, J., & Walujo, E. B. (2013). Local Knowledge And Diversity Of Medicinal Plants In The Batak Karo Sub-Ethnic Group In North Sumatra .

[8]. Sujarwo, W., Lugrayasa, I. N., & Kuswantoro, F. (2018). Ethnobotanical Study Of Three Traditional Markets In Tabanan District Bali. Berita Biologi, 17(3), 283-297.

[9]. Utami, N. R., Rahayuningsih, M. A. R. G. A. R. E. T. A., Abdullah, M., & Haka, F. H. (2019). Ethnobotany Of Medicinal Plants Of Local Commonities On Mount Ugaran, Centra Java. Pros Sem Nas Masy Biodiv Indon, 5(2), 205-208.