

Toba Batak Ethnomedicine in Sipituhuta Village, Pollung District, Humbang Hasundutan Regency, North Sumatra

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ABSTRACT

The importance of introducing medicinal plants of Toba Batak tribe as traditional medicinal ingredients increases public knowledge about their use in general. The objective of this study was to find out the types of plants that have medicinal properties and how they were used by the Toba Batak tribe. The types of research used were descriptive qualitative and quantitative with structured interview methods directly to predetermined informants. The selection of informants was carried out using a purposive sampling method, with a total of 9 informants. Based on the results, there are 90 species and 46 families of plants that have potential as medicine. Based on family, the number of species most widely used by the people of Sipituhuta Village are Zingiberaceae (7 species), Asteraceae (6 species), Poaceae (6 species) and Solanaceae (5 species).

Keywords: Ethnomedicine, Sipituhuta Village, Toba Batak, traditional medicine

INTRODUCTION

The history of traditional medicine which has developed into the nation's cultural heritage, as well as the global issue of “back to nature” can increase the market for herbal products. Initially the utilization of a plant species was caused by the existence of a system of local knowledge (indigenous knowledge) regarding plants in a traditional community group. This knowledge is formed as a result of trial and error, as well as the development of human culture which can then create local wisdom in these community groups (Falah, 2013; Pitra et al., 2017).

Knowledge about medicinal plants has long been owned by our ancestors and up to now has been scientifically proven. The use of Indonesian medicinal plants will always continue to increase given the strong linkages of the Indonesian people to cultural traditions, especially the use of medicinal herbs (Kurdi, 2011; Bustanussalam, 2016; Fitri et al., 2021). To improve the health problems, medicinal plants are also very helpful to the community, because people will not feel the side effects of the herbal concoctions they make, it is different if people depend on synthetic medicines besides being expensive, the risk of side effects for long term health is also very worrying. It is relevant to research results (Sari,

2015; Ratnaningsih et al., 2020; Sahada et al., 2022) that the benefits of medicinal plants for the family are not only to increase family income, but also to preserve traditions, to save medical expenses and to utilize unproductive land.

Batak people as one of the largest tribes in North Sumatra, especially Toba Batak, have used plants as medicine since ancient times. Toba Batak themselves are scattered in several administrative areas in North Sumatra, such as in Samosir, Toba and Humbang Hasundutan Regencies. These traditional medicines are obtained directly from nature and processed simply based on the experience and knowledge of the community. This traditional knowledge was obtained from the ancestors of the Toba Batak people who were familiar with traditional medicine long before the community was familiar with medical treatment (Central Bureau of Statistics Humbang Hasundutan, 2018).

Studies related to medicinal plants has not been carried out much, limited to a few villages or sub-districts such as Martoba Village and Onan Rugu Samosir with a total of 79 plant species found (Ibo and Arimukti, 2019; Julius and Aththorick, 2022), and in Peadungdung Humbang Hasundutan Village as many as 92 species used as traditional medicine (Anggraeni et al., 2016). Based on the research and surveys that have been conducted, it is clear that the diversity of medicinal plant species in the sub-districts and villages in the Humbang Hasundutan region is very high and has the potential to explore knowledge related to ethnobotany. Sipituhuta Village, Pollung District is one of the villages where people still use plants as medicine and have high potential regarding the presence of medicinal plants, but this has never been reported.

Therefore, to answer the need for information related to data on medicinal plants and traditional ingredients used by Toba Batak ethnic group in North Sumatra, it is significant to conduct research on the use of medicinal plants by the people of Sipituhuta Village, Pollung District, Humbang Hasundutan Regency. The objective of this study is to find out the types of plants that have medicinal properties and how they are used by the Toba Batak ethnicity.

METHODS

This study was carried out from October to December 2020 in Sipituhuta Village, Pollung District, Humbang Hasundutan Regency. The type of research was in the form of descriptive qualitative and quantitative methods with structured interviews directly (open-ended) to predetermined informants. The selection of informants was carried out by using a purposive sampling method in which each hamlet consisted of 3 informants. The selected informants were people who were considered to use plants as medicine the most, such as traditional healers, traditional leaders, and community leaders. The total number of informants interviewed was 9 people from 3 hamlets. The informants consisted of 4 men and 5 women, where most of the selected informants ranged in age from 40 to 65 years.

The data used in this research were primary data and secondary data. Primary data came from interviews with informants, and secondary data came from literature related to the identification of plant species and bioactive compounds found in the types of medicinal plants obtained. Data were analysed based on the part of the plant used, how they were used, the habitus and their use. To calculate the percentage of plant parts used, use the formula:

$$\% \text{ Utilized part} = \frac{\sum \text{used part}}{\sum \text{plant species}} \times 100\%$$

To calculate the percentage of plant habitus found, use the formula:

$$\% \text{ certain habits} = \frac{\Sigma \text{every habitus}}{\Sigma \text{plant species}} \times 100\%$$



Figure 1. Map of research locations

RESULTS AND DISCUSSION

Types of Medicinal Plants in Sipituhuta Village, Pollung District

The results of interviews with informants in Sipituhuta Village, Pollung District, Humbang Hasundutan Regency, obtained 90 species and 46 plant families that have potential as medicine, it can be seen in Table 1 below. The number of species most widely used by the people in Sipituhuta Village are plants belonging to the Zingiberaceae tribe, namely 7 species, followed by the Asteraceae tribe (6 species), Poaceae (6 species) and Solanaceae (5 species).

Table 1. Types of Medicinal Plants in Sipituhuta Village, Pollung District

No	Family	Scientific name	Local names	Benefits
1	Zingiberaceae	<i>Curcuma domestica</i> L.	<i>Hunik</i>	Tonsils
2		<i>Zingiber officinale</i> Roscoe	<i>Jahe</i>	Treat Cough
3		<i>Curcuma xanthorrhiza</i> L.	<i>Burle</i>	Treat wind sits
4		<i>Etlingera elatior</i> (Jack) R.M.Sm.	<i>Rias</i>	Treat Cough
5		<i>Alpinia galanga</i> (L.) Wild.	<i>Lengkuas</i>	Treat rheumatism
6		<i>Kaempferia galanga</i> L.	<i>Kencur</i>	Treat colds

7		<i>Amomum compactum</i> Sol.ex Maton	<i>Kapulaga</i>	Treat Cough
8	Asteraceae	<i>Eupatorium</i> <i>perfoliatum</i> L.	<i>Bulung paet</i>	Stop hurting
9		<i>Artemisia vulgaris</i> L.	<i>Salaon</i>	Miscarriage prevention
10		<i>Sonchus arvensis</i> L.	<i>Duhut begu</i>	Treat kidney stones
11		<i>Ageratum conyzoides</i> L.	<i>Bandotan</i>	Wound healer
12	Poaceae	<i>Tithonia diversifolia</i> (Hemsl.) A. Gray	<i>Bitter leaves</i>	Stop hurting
13		<i>Elephantopus scaber</i> L.	<i>Palm site</i>	Treat high blood pressure
14		<i>Imperata cylindrica</i> (L.) Raeusch.	<i>Ri</i>	Treat gout
15		<i>Cymbopogon citratus</i> (DC.) Stapf	<i>Sangge- sangge</i>	Body refresher
16		<i>Saccharum</i> <i>spontaneum</i> L.	<i>Tolong</i>	Treat diabetes
17		<i>Saccharum</i> <i>arundinaceum</i> Retz.	<i>Tobu arang</i>	Treat constipation
18		<i>Lophatherum gracile</i> Brongn.	<i>Duhut</i>	Treat cough
19		<i>Saccharum</i> <i>officinarum</i> L.	<i>Tobu na mera</i>	Strengthen teeth
20	Solanaceae	<i>Solanum ferrogium</i> Jacq.	<i>Ribbang</i>	Treat eyes and high blood
21		<i>Physalis angulata</i> L.	<i>Pultak-pultak</i>	Treat measles
22		<i>Capsicum frutescens</i> L.	<i>Cabe rawit</i>	Treat stomach
23		<i>Solanum melongena</i> L.	<i>Terong</i>	Uterine booster
24	Malvaceae	<i>Capsicum annuum</i> L.	<i>Cabe mera</i>	Treat rheumatism
25		<i>Hibiscus rosa-</i> <i>sinensis</i> L.	<i>Kembang sepatu</i>	Treat fever
26		<i>Urena lobata</i> L.	<i>Sappilulut</i>	Treat intestinal inflammation
27		<i>Hibiscus sabdariffa</i> L.	<i>Rosela</i>	Treat goiter
28	Euphorbiaceae	<i>Hibiscus radiatus</i> Cav.	<i>Kasturi</i>	Urine laxative
29		<i>Aleurites moluccana</i> (L.) Wild.	<i>Kemiri</i>	Treat stomach
30		<i>Macaranga triloba</i> (Thunb.) Mull.Arg.	<i>Balik-balik angin</i>	Treat diarrhea
31		<i>Acalypha australis</i> L.	<i>Anting-anting</i>	Treat itching
32		<i>Euphorbia prunifolia</i> Jacq.	<i>Patik emas</i>	Treat diarrhea

33	Fabaceae	<i>Erythrina lithosperma</i> Blume ex Miq.	<i>Dap-dap</i>	Treat wounds and ulcers
34		<i>Allium sativum</i> L.	<i>Bawang putih</i>	Refresh the body
35		<i>Senna alata</i> (L.) Roxb.	<i>Recce-recce</i>	Treat scabies
36		<i>Leucaena</i> <i>leucocephala</i> (Lam.) de Wit	<i>Lamtoro</i>	Urine laxative
37	Rutaceae	<i>Citrus hystrix</i> DC.	<i>Utte</i>	Refresh the body
38		<i>Citrus x aurantifolia</i> (Christm.) Swingle	<i>Jeruk nipis</i>	Treat kidney stones
39		<i>Zanthoxylum</i> <i>acanthopodium</i> DC.	<i>Andaliman</i>	Pain relief
40	Lamiaceae	<i>Orthosiphon</i> <i>aristatus</i> (Bl.) Miq.	<i>Kumis kucing</i>	Treat diabetes
41		<i>Coleus amboinicus</i> Lour.	<i>Bangun-bangun</i>	Blood booster
42		<i>Ocimum basilicum</i> L.	<i>Daun selasih</i>	Treat high blood pressure
43	Liliaceae	<i>Allium</i> <i>schoenoprasum</i> L.	<i>Bawang batac</i>	Treat fever
44		<i>Eleutherine</i> <i>palmifolia</i> (L.) Merr.	<i>Bawang dayak</i>	Treat high blood pressure
45		<i>Aloe vera</i> (L.) Burm.f.	<i>Lidah buaya</i>	Treat fever
46	Myrtaceae	<i>Psidium guajava</i> L.	<i>Attajau</i>	Treat diarrhea
47		<i>Melaleuca</i> <i>leucadendra</i> (L.) L.	<i>Kalippus</i>	Refresh the body
48		<i>Rhodomyrtus</i> <i>tomentosa</i> (Aiton) Hassk.	<i>Harimotting</i>	Treat kidney disease
49	Apiaceae	<i>Centella asiatica</i> (L.) Urb.	<i>Appappagan</i>	Treat back pain
50		<i>Apium graveolens</i> H.Wolff	<i>Daun sop</i>	Treat high blood pressure
51		<i>Foeniculum vulgare</i> Mill.	<i>Adas</i>	Treat flatulence
52	Acanthaceae	<i>Justicia gendarussa</i> Burm.f.	<i>Gandarus</i>	Treat rheumatism
53		<i>Andrographis</i> <i>paniculata</i> (Burm.f.) Wall. ex Nees	<i>Sambiloto</i>	Treat fever
54	Lauraceae	<i>Cinnamomum verum</i> J.Presl	<i>Kulit manis</i>	Body warmers
55		<i>Persea americana</i> Mill.	<i>Apokat</i>	Treat kidney stones
56	Amaryllidaceae	<i>Hymenocallis</i> <i>littoralis</i> (Jacq.) Salisb.	<i>Soddang-soddang</i>	Treat fever

57		<i>Allium cepa</i> L.	<i>Bawang merah</i>	Treat fever
58	Amaranthaceae	<i>Amaranthus spinosus</i> L.	<i>Bayam duri</i>	Treat boils
59		<i>Achyranthes aspera</i> L.	<i>Jarong</i>	Treat boils
60	Cucurbitaceae	<i>Cucurbita moschata</i> Duchesne	<i>Jelok</i>	Treat stomach
61		<i>Sechium edule</i> (Jacq.) Sw.	<i>Assimun</i>	Treat measles
62	Acoraceae	<i>Acorus calamus</i> L.	<i>Jarango</i>	Treat headache, and reflection
63	Piperaceae	<i>Piper betle</i> L.	<i>Nappuran</i>	Treat vaginal discharge
64	Actinidiaceae	<i>Saurauia bracteosa</i> DC.	<i>Pir dot</i>	Treat high blood pressure
65	Melastomaceae	<i>Melastoma polyanthum</i> Blume	<i>Saddunuk</i>	Treat wounds
66	Caricaceae	<i>Carica papaya</i> L.	<i>Pepaya</i>	Snake venom antidote
67	Convolvulaceae	<i>Ipomoea batatas</i> (L.) Lam.	<i>Ubi jalar</i>	Treat boils
68	Agavaceae	<i>Sansevieria trifasciata</i> Prain	<i>Lidah mertua</i>	Treat high blood pressure
69	Oleaceae	<i>Jasminum sambac</i> (L.) Aiton	<i>Melati</i>	Treat menstrual pain
70	Annonaceae	<i>Annona muricata</i> L.	<i>Sirsak</i>	Power booster
71	Brassicaceae	<i>Brassica oleracea</i> L.	<i>Brokoli</i>	Uterine booster
72	Styracaceae	<i>Styrax benzoin</i> Dryand.	<i>Hamijjon</i>	Sauna
73	Araceae	<i>Homalomena cordata</i> Schott.	<i>Langge</i>	Sex stimulant
74	Balsaminaceae	<i>Impatiens balsamina</i> L.	<i>Haterangga</i>	Lower cholesterol
75	Asparagaceae	<i>Cordyline fruticosa</i> (L.) A.Chev.	<i>Silijjuang</i>	Snake venom antidote
76	Nepenthaceae	<i>Nepenthes mirabilis</i> (Lour.) Druce	<i>Kantong semar</i>	Prevent wet the bed
77	Moraceae	<i>Artocarpus heterophyllus</i> Lam.	<i>Pinasa</i>	Treat bee stings
78	Loranthaceae	<i>Macrosolen cochinchinensis</i> (Lour.) Tiegh.	<i>Sariddan</i>	Anti-inflammatory
79	Phyllanthaceae	<i>Sauropus androgynus</i> (L.) Merr.	<i>Nasi-nasi</i>	Breast milk booster
80	Selaginellaceae	<i>Selaginella doederleinii</i> Hieron.	<i>Cakar ayam</i>	Stop bleeding
81	Crassulaceae	<i>Kalanchoe pinnata</i> (Lam.) Pers.	<i>Cocor bebek</i>	Tonsils
82	Portulacaceae	<i>Portulaca oleracea</i> L.	<i>Golang-golang</i>	Treat dysentery

83	Bombaceae	<i>Durio zibethinus</i> L.	<i>Durian</i>	Treat itching
84	Rubiaceae	<i>Coffea arabica</i> L.	<i>Kopi</i>	Treat seizures
85	Nyctaginaceae	<i>Mirabilis jalapa</i> L.	<i>Bunga pukul empat</i>	Treat urinary tract infections
86	Plantaginaceae	<i>Plantago major</i> L.	<i>Daun urat</i>	Urine laxative
87	Cannaceae	<i>Canna edulis</i> Ker.Gawl.	<i>Gayong</i>	Treat stomach
88	Verbenaceae	<i>Stachytarpheta mutabilis</i> (Jacq.) Vahl	<i>Jarong lelaki</i>	Treat cough
89	Apocynaceae	<i>Vinca rosea</i> L.	<i>Tapak darah</i>	Treat high blood pressure
90	Begoniaceae	<i>Begonia grandis</i> Dryand.	<i>Assim-assim</i>	Treat gout

Zingiberaceae is the tribe most widely used by the people of Sipituhuta Village. This type of plant was used as cold medicine, cough medicine and used as a cooking spice. One of the reasons for the high utilization of Zingiberaceae species is the topography of the area which is a plateau, so spices are needed that warm the body and are easy to cultivate (Silalahi and Anggraeni, 2018; Nasution et al., 2020; Silalahi et al., 2021). This type of plant from the Zingiberaceae tribe contains essential oils and resins, and in medicine this tribe was used as a carminative, stimulant and flavor enhancer (Tjitrosoepomo, 2015; Kuntorini, 2018; Nurchayati and Ardiyansyah, 2018).

Plant Parts Used

The parts of the plants used by the people of Sipituhuta Village, Humbang Hasundutan Regency as medicinal ingredients are the leaves, fruit, all parts, rhizomes, stems, tubers, sap, roots, seeds, flowers and skin. Complete data can be seen in Figure 1.

Figure 1 above indicates that leaves are the part of the plant that is most widely used as medicine by the people of Sipituhuta Village, namely as many as 40 type plants or 44.4% of all types of medicinal plants collected. It is since the drug content or substances needed are abundant in the leaves. The leaves are also easy to process because of their soft structure compared to other plant parts, and they are available continuously and are more often used by the community to treat hereditary diseases. Based on Astutik et al., (2015) and Hamzari (2008) in their research also stated that the leaves are the part of the plant most often used as a medicinal ingredient because they are easy to obtain and mix as medicine compared to other plant parts.

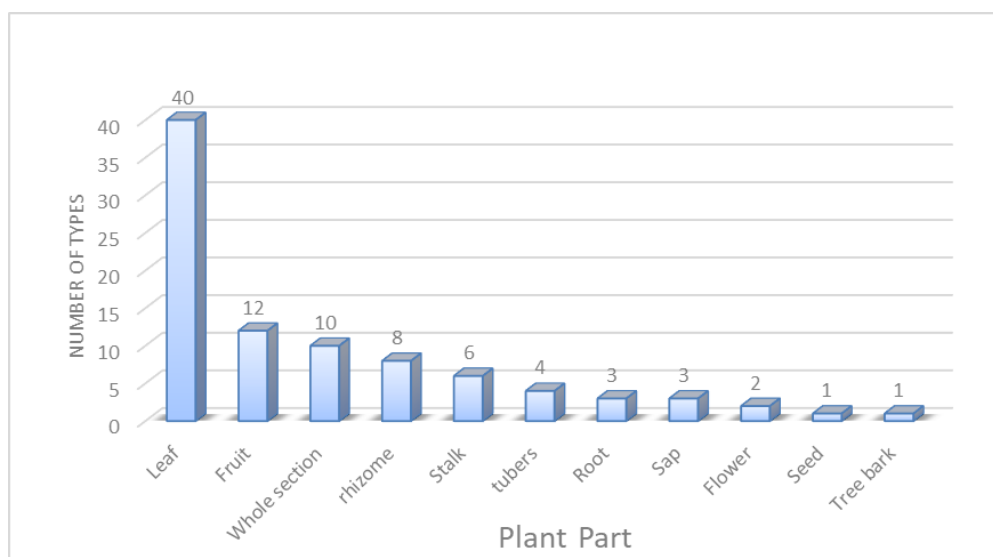


Figure 1. Percentage of plant parts used as medicine

How to Concoct

Based on the results of interviews with informants, there are 10 ways of concocting medicinal plants that are often practiced by the Toba Batak people in Sipituhuta Village, namely, boiling, pounding, cooking, squeezing, grating, chewing, burning, squeezing, searing (burning briefly to wither the leaves) and dried. Complete data can be seen in Figure 2.

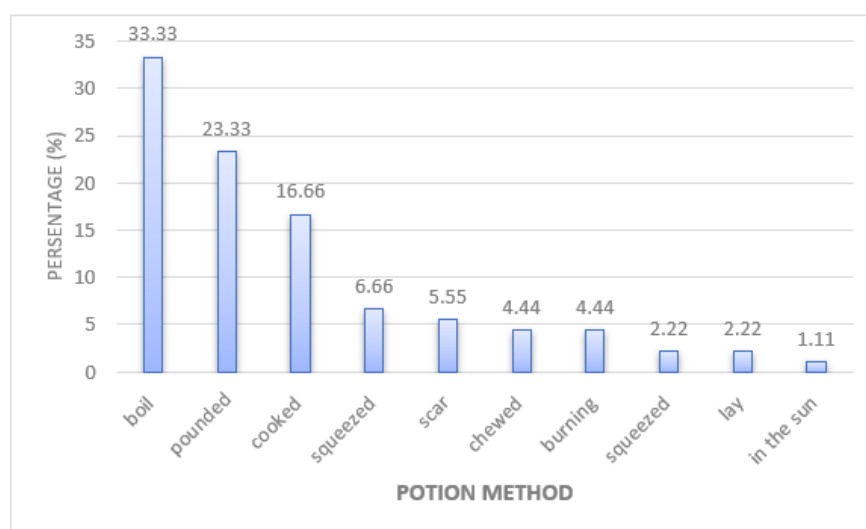


Figure 2. Percentage of plant blending methods used as medicine

Figure 2 above indicates that the method of concocting medicinal plants that is most widely used by the public is by boiling, which is 33.33%. It is since plant extracts that are boiled will come out of the plant organs when boiled so that apart from being easy to use, it is also easy to process and the results are also more effective. In general, the composition of plants in the boiling processing model used only one type of plant (single). Based on Susiarti (2015) the types of plants used as traditional medicinal ingredients were simply boiled. It was done since the method regards very easy for the community, practical and economical and can be done repeatedly. The plant parts that were usually boiled are leaves, bark, stems, roots and fruit.

How to Use

The results of the interviews indicated that there were eight ways to use medicinal plants, namely drinking, eating, smearing, sticking, bathing, dripping, spraying and tradisional sauna (traditional heating method by covering all parts of the body so that the vapor from the medicine was absorbed by the body, for example, a sauna). Complete data can be seen in Figure 3.

Figure 3 indicates that there are several ways to use medicinal plants by the people of Sipituhuta Village including drinking (57.77%), eating (13.33%), smearing (10%), pasting (8.88%), bathing (5.55%), dripped (2.22%), sprayed and topped respectively (1.11%). How to use the ingredients of medicinal plants by the public in general by way of drinking (57.77%).

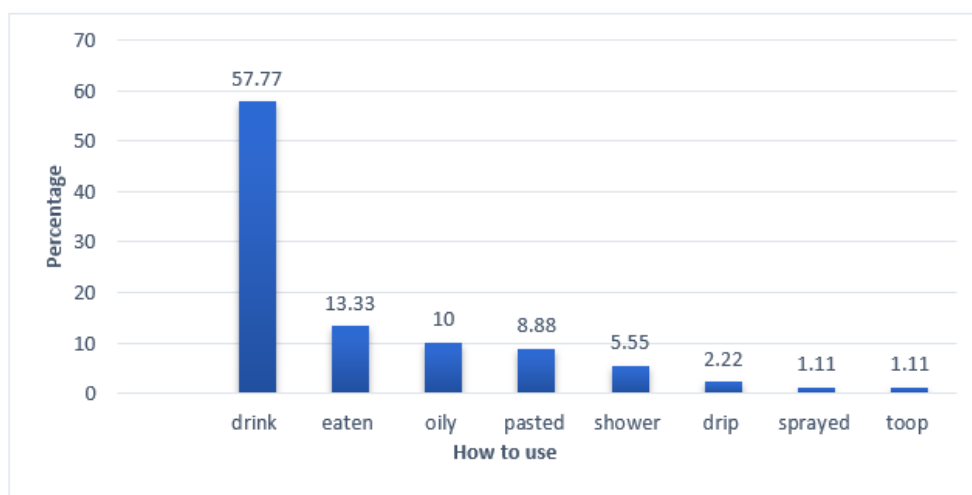


Figure 3. Percentage of the use of medicinal plants

Local people believed that by drinking it, the disease they suffer will heal and react more quickly than when smeared, taped or anything else. The same thing was also expressed by Dipta (2014) who stated that the use of plants as medicine by drinking was believed to be a disease that is felt to be curable and has a very fast reaction compared to other methods.

Habitus

Based on the results of the interviews, there were four types of habitus found in medicinal plants, namely trees, shrubs, shrubs and herbs. Complete data can be seen in Figure 4. The figure indicates that the habitus of plants that are most widely used as medicine by the community are herbs as many as 46 plant species (51.11%). Herbaceous plants are plants that have soft stems and are not in the form of wood, generally easy to find and easy to use so that people use them more for cosmetic ingredients and traditional medicine. Based on Arizona (2011) herbal plants are plants that are easily cultivated and do not require large yards for planting. Meliki et al. (2013) the use of medicinal plants in daily life by the people of Beringin Village, Sintang District, West Kalimantan is largely based on herbaceous habitus.

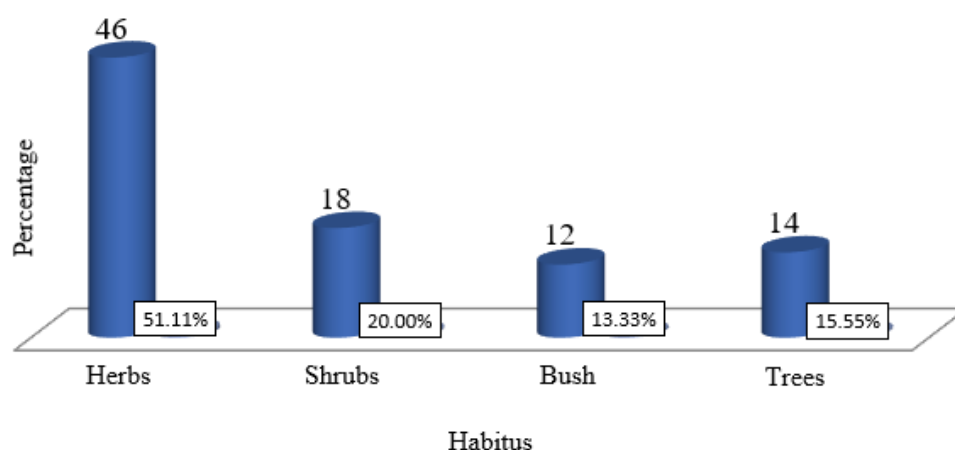


Figure 4. Utilized plant habitus percentage

Utilization of Medicinal Plants

The results of the interviews indicate that the community used medicinal plants in various forms of use, namely medicine, reflection and health. Total utilization and percentage can be seen in Figure 5.

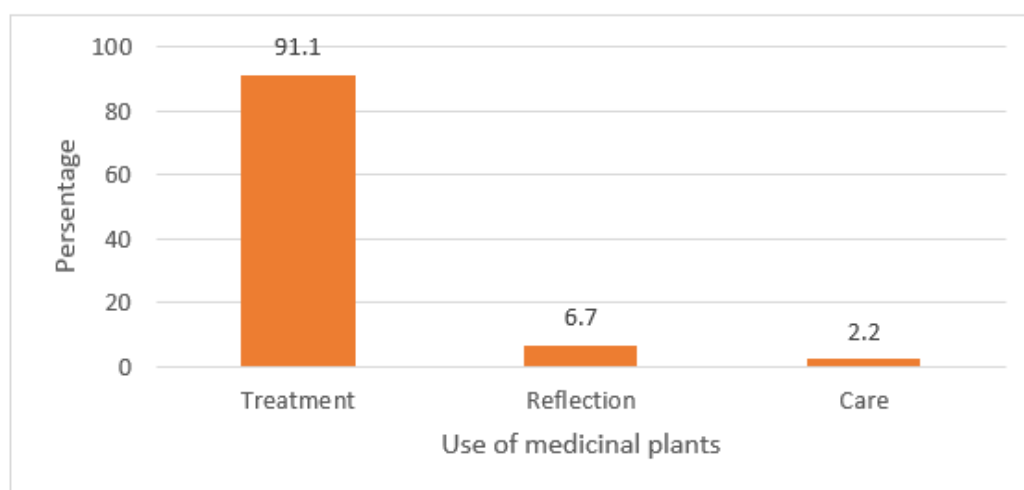


Figure 5. Percentage of the Benefit of Medicinal Plants

Figure 5 indicates the scoring results obtained from informants 3 repetitions with the highest score, namely treatment (91%) can be used as cold medicine, cough medicine, diarrhea, flu, kidney pain, back pain, high blood pressure, diabetes, measles and other diseases. The use of medicinal plants for reflection purposes with a score (6.7%) was used as a medicine for gout or aching rheumatic pain, body freshener, headache, pain reliever, body warmer and top. The second score was the use of medicinal plants as a treatment (2.2%), which includes the use as a treatment to stop wounds, refresh the body, caterpillar wounds, rheumatism, ulcer drugs, energy boosters, fertility enhancers and so on.

Regarding the dose of using the ingredients from the processing of medicinal plants, the dosage varies, some were taken in moderation, one tablespoon, one teaspoon, some are drunk half a glass and some are drunk in glasses. In the form of herbal medicine as much as one glass 2 or 3 times a day and the most effective time of the concoction is taken in the

morning and evening, preferably after eating, or directly applied and dripped on the part that needs it.

This study also found that the diversity of plants in Sipituhuta Village, Pollung District, Humbang Hasundutan Regency was quite high, judging from the many types of wild and cultivated medicinal plants, the people in Sipituhuta Village only took and utilized these plants according to their needs. For their needs the plants that are still small and young can have the potential to grow and develop and avoid extinction. The results of the study also indicates that modern health facilities in Sipituhuta Village are available, but the community still tends to prioritize traditional medicine since the ingredients are safer and cheaper and are widely available in their yards. From an economic perspective, the existence of these medicinal plants is enough to help the community to get additional income because medicinal plants are quite salable in the market. In terms of health and culture, medicinal plants are also very beneficial for the people of Sipituhuta Village because natural medicines do not cause significant side effects and are relatively inexpensive and as an effort to preserve local wisdom regarding the use of medicinal plants.

CONCLUSION

Sipituhuta Village, Pollung District, Humbang Hasundutan Regency has a fairly high diversity of medicinal plant species. The results indicate that there were 90 species belonging to 46 plant families that have potential as medicine. The Zingiberaceae, Asteraceae, and Poaceae tribes are medicinal plants with the highest number of species used by the people of Sipituhuta Village. The most used part of the plant is the leaves 40 (44.4%). Utilization of medicinal plants most widely used is as a treatment (91.1%). The most common concoction method was boiling 31 (33.33%). The way to use it the most is by drinking as much as 52 (57.77%). Habitus of medicinal plants that most is herbs with 46 species (51.11%).

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