

CHAPTER IV
RESULTS AND DISCUSSION

4.1 Species of Medicinal Plants Used

Based on the results of research obtained from the community in Sipituhuta Village, Pollung Subdistrict, Humbang Hasundutan Regency, there are 90 species and 46 families of plants that have the potential as medicine, this can be seen in table 1 below.

Table 1. Species of Medicinal Plants in Sipituhuta Village, Pollung Subdistrict

No	Family	Names	
		Scientific	Local
1	Zingiberaceae	<i>Curcuma domestica</i>	Hunik
2		<i>Zingiber officinale</i>	Ginger
3		<i>Curcuma xanthorrhiza</i>	Burle
4		<i>Etilingera elatior</i>	Rias
5		<i>Alpinia galanga</i>	Galangal
6		<i>Kaempferia galanga</i>	Aromatic ginger
7		<i>Amomum compactum</i>	Cardamom
8	Asteraceae	<i>Eupatorium perfoliantum</i>	Bulung paet
9		<i>Artemisia vulgaris.</i>	Salaon
10		<i>Sonchus arvensis</i>	Duhut begu
11		<i>Ageratum conyzoides</i>	Bandotan
12		<i>Tithonia diversifolia</i>	Daun pahitan
13		<i>Elephantopus scaber</i>	Tapak liman
14	Poaceae	<i>Imperata cylindrica</i>	Ri
15		<i>Cymbopogon citratus</i>	Sangge- sangge
16		<i>Saccharum spontaneum</i>	Tolong
17		<i>Saccharum arundinaceum</i>	Tobu arang
18		<i>Lopatherum gracile</i>	Duhut
19		<i>Saccharum officinarum</i>	Tobu na mera
20	Solanaceae	<i>Solanum ferrogium</i>	Ribbang
21		<i>Physalis angulate</i>	Pultak-pultak
22		<i>Capsicum frutescens</i>	Cayenne pepper
23		<i>Solanum melongena</i>	Eggplant
24		<i>Capsicum anuum</i>	Red chili
25	Malvaceae	<i>Hibiscus rosa-sinensis</i>	Hibiscus
26		<i>Urena lobata</i>	Sappilulut

27		<i>Hibiscus sabdariffa</i>	Rosela
28		<i>Hibiscus radiatus</i>	Katsuri
29	Euphorbiaceae	<i>Aleurites moluccana</i>	Candlenut
30		<i>Macaranga triloba</i>	Balik-balik angin
31		<i>Acalypha australis</i>	Anting-anting
32		<i>Euphorbia prunifolia</i>	Patik emas
33	Fabaceae	<i>Erythrina lithosperma</i>	Dap-dap
34		<i>Allium sativum</i>	Garlic
35		<i>Senna alata</i>	Recce-recce
36		<i>Leucaena leucocephala</i>	Lamtoro
37	Rutaceae	<i>Citrus hystrix</i>	Utte
38		<i>Citrus aurentifolia</i>	Lime
39		<i>Zanthoxylum acanthopodium</i>	Andaliman
40	Lamiaceae	<i>Ortoshiphon aristatus</i>	Cat whiskers
41		<i>Coleus amboinicus</i>	Bangun-bangun
42		<i>Ocimum basilicum</i>	Basil leaves
43	Liliaceae	<i>Allium schoenoprasum</i>	Batak onions
44		<i>Eleutherine palmifolia</i>	Dayak onions
45		<i>Alloe vera</i>	Aloe vera
46	Myrtaceae	<i>Psidium guajava</i>	Attajau
47		<i>Melaleuca leucadendra</i>	Kalippus
48		<i>Rhodomyrtus tomentosa</i>	Harimotting
49	Apiaceae	<i>Centella asiatica</i>	Appappagan
50		<i>Apium graveolens</i>	Soup leaves
51		<i>Foeniculum vulgare</i>	Adas
52	Acanthaceae	<i>Justicia gendarussa</i>	Gandarusu
53		<i>Andrographis paniculata</i>	Sambiloto
54	Lauraceae	<i>Cinnamomun verum</i>	Sweet skin
55		<i>Persea Americana</i>	Avocado
56	Amaryllidaceae	<i>Hymenocallis littoralis</i>	Soddang-soddang
57		<i>Allium cepa</i>	Red onion
58	Amaranthaceae	<i>Amaranthus spinosus</i>	Spinach thorn
59		<i>Chyranthes aspera</i>	Jarong
60	Cucurbitaceae	<i>Cucurbita moschata</i>	Jelok
61		<i>Sechium edule</i>	Assimun
62	Acoraceae	<i>Acorus calamus</i>	Jarango
63	Piperaceae	<i>Piper betle</i>	Nappuran
64	Actinidiaceae	<i>Saurauia bracteosa</i>	Pir dot
65	Melastomaceae	<i>Melastoma polyanthum</i>	Saddunuk
66	Caricaceae	<i>Carica papaya</i>	Papaya
67	Convolvulaceae	<i>Ipomoea batatas</i>	Sweet potato
68	Agavaceae	<i>Sansevieria trifasciata</i>	Lidah mertua

69	Oleaceae	<i>Jasminum sambac</i>	Jasmine
70	Annonaceae	<i>Annona muricata</i>	Soursop
71	Brassicaceae	<i>Brassica oleracea</i>	Broccoli
72	Styracaceae	<i>Styrax benzoin</i>	Hamijjon
73	Araceae	<i>Homalomena cordata</i>	Langge
74	Balsaminaceae	<i>Impatiens balsamina</i>	Haterangga
75	Asparagaceae	<i>Cordyline frutiosa</i>	Silijjuang
76	Nepenthaceae	<i>Nepenthes mirabilis</i>	Kantong semar
77	Moraceae	<i>Artocarpus heterophyllus</i>	Pinasa
78	Loranthaceae	<i>Macrosolen cochinchinensis</i>	Sariddan
79	Phyllanthaceae	<i>Sauropus androgynus</i>	Nasi-nasi
80	Selaginellaceae	<i>Selaginella doederleinii</i>	Cakar ayam
81	Crassulaceae	<i>Kalanchoe pinnata</i>	Cocor bebek
82	Portulacaceae	<i>Portulaca oleraceal.</i>	Golang-golang
83	Bombaceae	<i>Durio zibethinus</i>	Durian
84	Rubiaceae	<i>Coffea Arabica</i>	Coffee
85	Nyctaginaceae	<i>Mirabilis jalapa</i>	Bunga pukul empat
86	Plantaginaceae	<i>Plantago major</i>	Daun urat
87	Cannaceae	<i>Canna edulis</i>	Gayong
88	Verbenaceae	<i>Stachytarpheta mutabilis</i>	Jarong lelaki
89	Apocynaceae	<i>Vinca rosea</i>	Tapak darah
90	Begoniaceae	<i>Begonia grandis</i>	Assim-assim

Based on table 1 above, it is obtained from the results of interviews with the people of Sipituhuta Village, who mostly of them were ethnic Batak. From the results of interviews, ethnic Batak still believe in traditional medicine as evidenced by the use of plants that they use as traditional medicine. From the data obtained, there are 90 plant species and 46 medicinal plant families consisting of 7 species of Zingiberaceae family, 6 species of Asteraceae and Poaceae families, respectively, 5 species of Solanaceae family, 4 species of Malvaceae, Euphorbiaceae and Fabaceae families, respectively, 3 species of Rutaceae, Lamiaceae, Lilliacae, Myrtaceae and Apiaceae families, respectively, 2 species of Acanthaceae, Lauraceae, Amaryllidaceae, Amaranthaceae and Cucurbitaceae families, respectively and 29 other families with 1 species, respectively.

Zingiberaceae is a family whose species are most widely used by the people of Sipituhuta Village, namely as cold medicine and cough medicine and can be used to give aromas or cooking spices so that these plants were usually available at people's homes. Sipituhuta village is a cold area that makes it easy for people to catch a cold, therefore people like to use Zingiberaceae plants because they have many benefits as heating and medication that were easy to breed and have been efficacious for generations in curing various diseases, especially because people had used to use it and known the Zingiberaceae family very well.

Hasanah's research (2016) says that the plant species were widely used as medicine in the Buol area of Central Sulawesi originated from the Zingiberaceae family. Then when it is viewed from the chemical content, according to Tjitrosoepomo (2015) species from the Zingiberaceae family contain essential oils and resins, and in the medicines of this tribe were used as carminatives, stimulants and flavouring or seasoning. Plant species from the Zingiberaceae family are *Curcuma domestica*, *Zingiber officinale*, *Curcuma xanthorrhiza*, *Etilingera elatior*, *Alpinia galanga*, *Kaempferia galanga*, *Amomun compactum*. These species are commonly used as tonsillitis, cough medicine, cold medicine, angina pectoris, and rheumatism medicine. All Zingiberaceae plants are herbaceous plants or watered stems and the method of gathering is usually used by grating and drinking.

Asteraceae (kenikir-kenikir) is widely used by the community, usually used when people are injured, bleeding or bleed and preventing miscarriage. This plant is often used because this type of plant is very effective to cover wounds and is easy to find. Usually, the part used is the leaves because the leaves are easier to use and the drug content is mostly found in the leaves. The method of concoction usually done by the community, which is squeezing and its use is by being sticked to the wound. The types of plants from the Asteraceae family commonly used by the people of Sipituhuta Village are *Eupatorium*

perfoliantum, *Artemisia vulgaris*, *Sonchus arvensis*, *Ageratum conyzoides*, *Tithonia diversifolia*, and *Elephantopus scaber*. Usually, the part used as medicine is the leaf. The stature of the Asteraceae family is mostly herbaceous plants and only a few shrubs.

Poaceae (grains) are also often used by the people of Sipituhuta Village because most people work as farmers, so when people are tired and their bodies aches/gout due to fatigue from work, they usually use plants of *Imperata cylindrica*, *Cymbopogon citrates*, *Saccharum arundinaceum*, *Lopatherum gracile*, *Saccharum officinarum*, and *Saccharum arundinaceum* as a medicine that may reduce aches or fatigue, for diabetes, cough medicine, tooth strengthening and medicine for people who have difficulty urinating. This plant is also easy to be served, just by boiling and drinking when the water is cold. Usually, the Poaceae family plants used by the community are herbaceous habitus.

Solanaceae (eggplant) is widely used by the people of Sipituhuta Village, besides being able to be consumed with high nutritional value, it can also be used as a medicine for high blood pressure, eye medicine, measles, ulcers, fertility and rheumatism. Species from the Solanaceae family are usually used by eating directly or it can also be cooked first, and the part, which mostly often used is the fruit part and the habitus of the Solanaceae family that was usually a shrub habitus. Plant species from the Solanaceae family are commonly used by the people of Sipituhuta Village are *Solanum ferrogium*, *Physalis angulate*, *Capsicum frutescens*, *Solanum melongena*, and *Capsicum anuum* species.

Malvaceae (cotton) is often used by the community as a febrifuge or fever, for intestinal inflammation, goitre and laxative urine. The plant parts usually used are leaf parts, leaf parts of plant species such as *Hibiscus rosa-sinensis*, *Urena lobata*, *Hibiscus sabdariffa*, and *Hibiscus radiates*, usually applied by drinking after being boiled or smeared on hot parts

of the body. The most often part used is the leaf, and the plants in this family are mostly shrubs and only a few are herbaceous.

Euphorbiaceae (kastuba-kastubaan) is used by the community as a medicine for itching, stomach or ulcers pain. The people of Sipituhuta Village often use species from the Euphorbiaceae family to cure skin diseases because most of them have sap, which is efficacious for curing groups of diseases and skin care, diarrhoea medicine, and sedative medicine. These plant species are *Aleurites moluccana*, *Macaranga triloba*, *Acalypha australis*, *Euphorbia prunifolia*. Usually, the leaves from the Euphorbiaceae family are boiled and drunk, and can also be rubbed on the itchy body parts. This plant family is usually in the form of tall and large trees.

In accordance with the research of Mwine and Damme (2011) that Euphorbiaceae is an important family of medicinal plants. Members of the Euphorbiaceae family are found and distributed in almost every part of the world and are easy to adapt to various types of habitats, therefore this family produces various types of varieties that are able to survive. This is expected causing species of medicinal plants of the Euphorbiaceae family to be found and utilized in all areas in Pollung Subdistrict.

Fabaceae (legumes) are usually used by the community as a medicine for wounds due to itching or scabies, worms, ulcers, body aches, and urine laxatives. Species of this family are *Erythrina lithosperma*, *Allium sativum*, *Senna alata*, *Leucaena leucocephala*. Usually, this plant is used by boiling and pounding then drinking, but some are applied to the itchy or wounded body parts. Species from this family contain chemicals that are important for medicine and are now widely being used in various health products (Gao et al, 2010).

Rutaceae is a family (oranges), this family is a species of plant that commonly planted by people around the house, because these plants do not require a large area of land and this

plant is also very useful for daily life. The species of Rutaceae plants are *Citrus hysrix*, *Citrus aurentifolia* and *Zanthoxylum acanthopodium*. The plant is a herbaceous plant and parts usually used by the community is the fruit.

4.2 Utilization of Medicinal Plants

4.2.1 Parts of Plants Used

The parts of plant used by the people of Sipituhuta Village in three hamlets in Humbang Hasundutan Regency are leaves, fruits, all parts, rhizomes, stems, tubers, sap, roots, seeds, flowers and skins. Complete data can be seen in Figure 1.

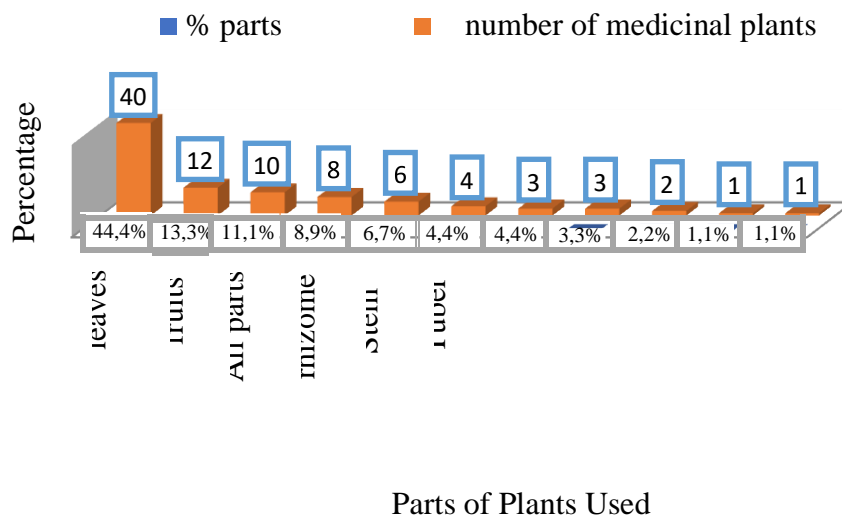


Figure 1. Graph of Percentage for Parts of Plant Used by the Community as Medicine

The picture above shows that parts of the plant that are most widely used as medicine by the people of Sipituhuta Village is the leaf part, which is 40 plant species or 44.4%. This is because the drug content or substances needed are contained in more leaves, and leaves are also easily processed with a soft structure compared to other plant parts, the leaves are also always available continuously and more often used by the community for curing from generation to generation.

The research is conducted by Astutik et al, (2015) stated that leaves are widely used as medicinal raw materials because this organ is most commonly found when plants do not enter the flowering and fruiting season.

In accordance with Hamzari's (2008) research, the most widely used plant part is the leaf because it is a place for food processing that functions as medicine, easily obtained and easily made or mixed as medicine compared to the bark, stems and roots of plants. Plant material to be used for treatment must be fresh. If used in a dry state, the condition of the material must be good. Avoid using materials that are exposed to dirt, damp, mouldy, eaten by insects, or lying-in dirty places. Examples of plants whose leaves are used, namely bandotan (*Ageratum conyzoides*), bitter leaf (*Tithonia diversifolia*), tapak liman (*Elephantopus scaber*), attajau (*Psidium guajava*), calyppus (*Melaleuca leucadendra*), harimotting (*Rhodomyrtus tomentosa*), nappuran (*Piper betle*). , aloe vera, dot pear (*Saurauia bracteosa*), appappagan (*Centella asiatica*) and soup leaf (*Apium graveolens*).

There are 12 plant species or 13.33% of the plants used for the fruit, for example, cardamom (*Amomun compactum*), utte (*Citrus hystrix*), lime (*Citrus aurentifolia*), andaliman (*Zanthoxylum acanthopodium*), ribbang (*Solanum ferrogium*), cayenne pepper (*Capsicum frutescens*), eggplant (*Solanum melongena*) and red chili (*Capsicum anuum.*). For the plants that usually their fruit parts used are plants with the Solanaceae family.

There are several species of plants where all of the growth organs can be used as medicine, there are 10 species or 11.11%, for example, the duhut begu (*Sonchus arvensis*), roselle (*Hibiscus sabdariffa*), lidah mertua (*Sansevieria trifasciata*), salaon (*Artemisia vulgaris*), earrings (*Acalypha australis*), patik mas (*Euphorbia prunifolia*), and cakar ayam (*Selaginella doederleini*).

4.2.2 Method of Concoction

Based on the method of concoction for medicinal plants by the people of Sipituhuta Village, there are 10 ways amongst other boiling, pounding, cooking, kneading, grating, chewing, burning, squeezing, roasting (burning briefly to wither the leaves) and drying under the sun. Complete data can be seen in Figure 2.

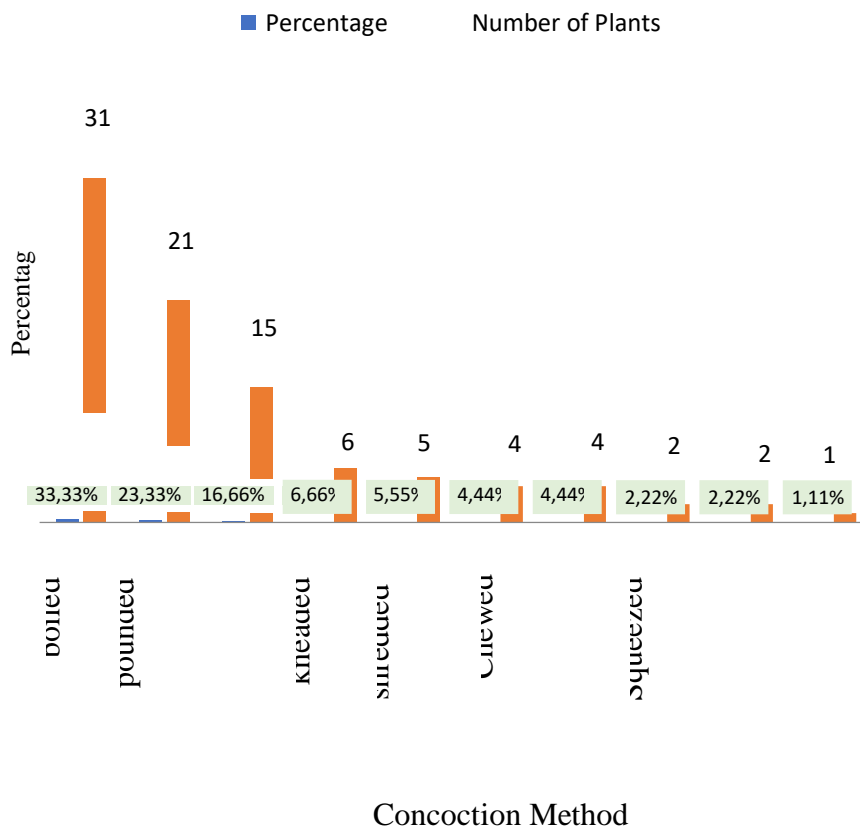


Figure 2. Graph of Percentage for Plant's Method of Concoction used by the Community as Medicine

Figure 2 above shows that the method of concoction for medicinal plants that widely used by the community is by boiling, namely (33.33%) this is because the boiled plant juice has come out of the plant organs thus, besides it is easy to use and to process and the result is more effective as well. In general, the composition of growing within this treatment mostly uses only one type of plant (single).

According to Susiarti (2015) in daily life, the types of plants used as ingredients of traditional medicine, their use in a simple, namely parts of the plant are used simply by boiling. The parts of plant used are leaves, bark, stems, roots and fruit. In addition, processing by boiling is very easy and economical because it can be boiled repeatedly. Then the next step is pounded (23.33%), cooked (16.66%), kneaded (6.66%), grated (5.55%) chewed and burned each (4.44%), squeezed and mashed each (2.22%), and the last one was dried under the sun (1.11%).

4.2.3 Use Method

Based on the results of research in Sipituhuta village, the use methods for medicinal plants are done by the people of Sipituhuta village, Pollung sub-district, Humbang Hasundutan Subdistrict as follow: there are 8 ways to use medicinal plants, which namely by drinking, eating, smearing, sticking, bathing, dripping, spraying and tooping (traditional heating method with cover all body parts so that the vapor from the drug is absorbed by the body, for example in a sauna). Complete data can be seen in Figure 3.

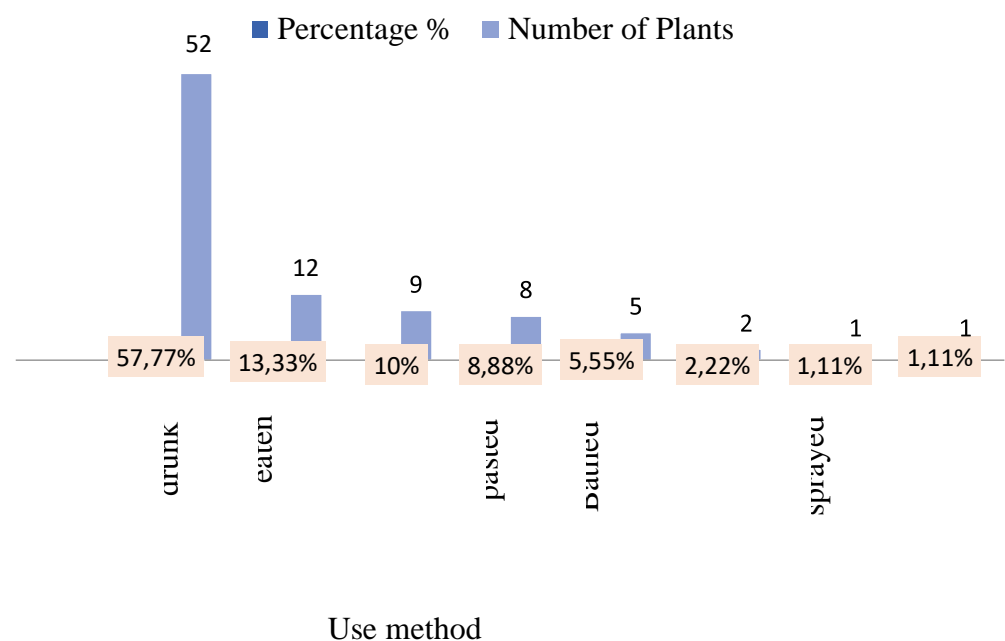


Figure 3. Graph of Percentage for Use Method of Medicinal Plants

There are several ways to use medicinal by the people of Sipituhuta Village, including drinking (57.77%), eaten (13.33%), smeared (10%), taped (8.88%), bathed (5, 3%). 55 %), dripped (2.22%), and finally sprayed and topped (1.11%, respectively). Based on the use method, people mostly use medicine by drinking it, because local people believe that by drinking the disease they feel will recover and have a very fast reaction compared to be smeared, pasted or other methods.

This is in accordance with Dipta's research (2014) which states that local people believe that by drinking the disease they feel will recover and have a reaction that is so fast compared to be smeared, pasted or other methods. External use can be smeared, pasted, sprayed, bathed, dripped, topped, while for internal use, by drinking and directly eating.

Toop or in Karo language sufficiently called as a cure using medicinal plants that are used by the Batak community for fitness and body health. Medication with toop (oukup / sauna) uses evaporation techniques that function to help remove toxins and impurities from the body. Most of the people of Sipituhuta use the hamijjon plant (*Styrax benzoin*) as a medicinal material, especially after childbirth. This is in accordance with Nasution's research (2009) that oukup is a kind of traditional steam bath, which aims to maintain health for postnatal mothers by means of a steam bath or called oukup. According to the Batak people say, this toop is still traditionally used, where a sick person is wrapped in a blanket and then steamed through a container on its top, there is wood charcoal burned and then given plant ingredients such as *Styrax benzoin* sap, hamijjon sap is burned will emit a very thick smoke and cause a sensation of heat so that the body becomes sweaty.

4.2.4 Habitus

Based on the results of interviews with the community in Sipituhuta Village, Pollung Subdistrict, Humbang Hasundutan Regency, the community has obtained types of medicinal plant habitus, namely trees, shrubs, shrubs, and herbs. Complete data can be seen in Figure 4.

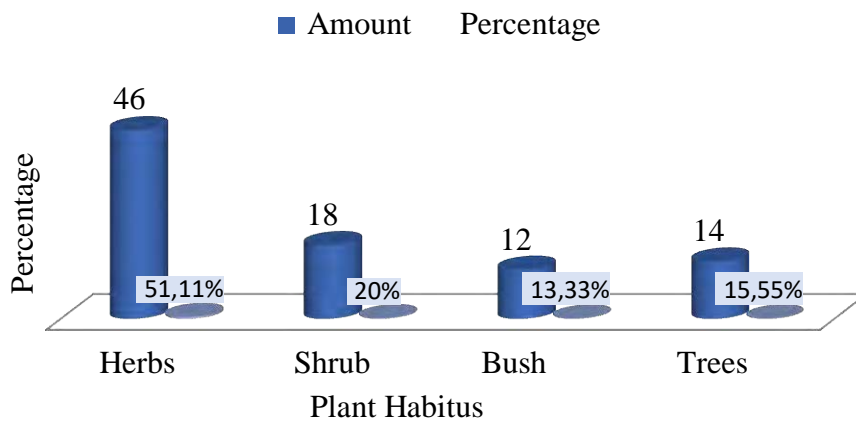


Figure 4. Graph of the Percentage for Plant Habitus Used

Figure 4 above shows that the plant habitus that most widely used as medicine by the community is herbaceous species as many as 46 plant species or 51.11%. Herbal plants are plants that have soft stems and do not form wood, generally easy to find and easy to use so that people use them more for cosmetics and traditional medicines.

This is in accordance with Arizona research (2011) because at the herb level, this plant is easily cultivated and does not require a large area of land to be planted in the yard. It is relevant to the research conducted by Meliki et al, (2013). The use of medicinal plants by the Banyan Village community in their daily life in Sintang Regency, KALBAR is mostly in herbal habitus. Examples are *Sonchus arvensis*, *Ageratum conyzoides*, *Zingiber officinale*, *Etlingera elatior*, *Kaempferia galanga* and other Zingiberaceae family. As for the shrub habitus, there were 18 species (20%) namely *Hibiscus radiates*, *Tithonia diversifolia*, *Citrus*

hystrix, *Cinnamomun verum*, *Rhodomyrtus tomentosa* and *Vinca rosea*. There are 12 species of bushes (13.33%) for example *Solanum ferrongium*, *Hibiscus rosa-sinensis*, *Urena lobata*, *Acalypha australis*, *Zanthoxylum acanthopodium*, *Coleus amboinicus* and *Ocimum basilicum*. Plants belonging to the Lamiaceae family are usually shrubs and at least 14 species (15.55%) are trees, for example *Erythrina lithosperma*, *Aleurites moluccana*, *Macaranga triloba*, *Parsea americana*, *Melaleuca leucadendra* and *Psidium guajava*

4.2.5 Utilization of Medicinal Plants by the Community

Based on the result of interview on the plant's utilization as medicine by the people of Sipituhuta Village, Pollung Subdistrict, Humbang Hasundutan Regency, the highest data results are obtained from the benefits of medicinal plants that can be seen in Figure 5.

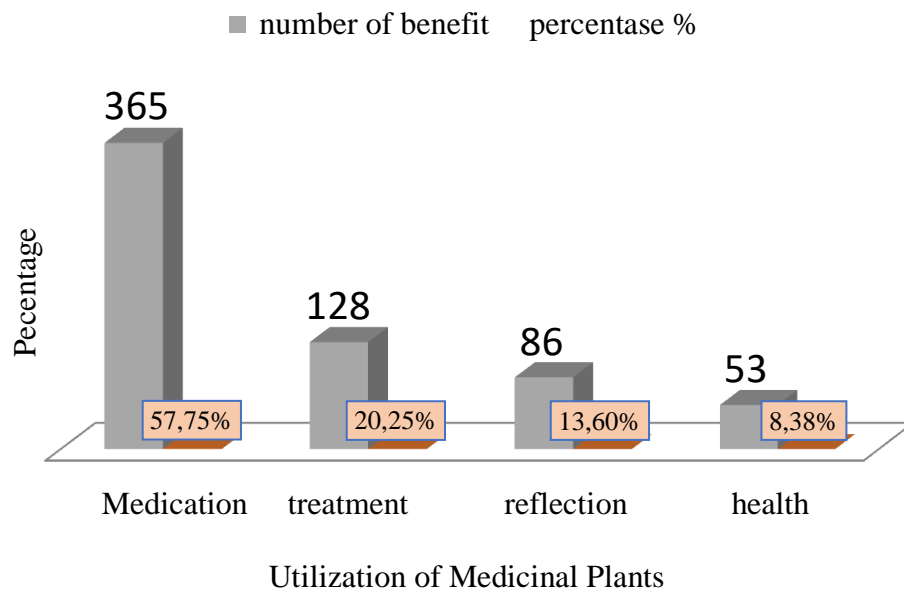


Figure 5. Percentage Graph for Total Benefits of Medicinal Plants

Based on the results of the scoring from the use of medicinal plants by the community, the highest score is a treatment (57.75%) with 365 times of statements, which can be used as

cold medicine, cough medicine, diarrhoea, flu, kidney pain, backache, high blood pressure, diabetes, urinary disease, measles and other diseases. The second score for the use of medicinal plants is as a treatment (20.25%) with 128 times of statements that can be used as a treatment to stop wounds, body fresheners, wormy wounds, rheumatism, ulcer drugs, energy boosters, fertility fertilizers and so on. The third score is reflection (13.60%) with 86 statements that this plant can be used as a remedy for gout or aches, body fresheners, headaches, pain relief, body warmers and toops. The lowest score is health (8.38%) with 53 statements, namely preventing miscarriage, strengthening teeth, vaginal discharge, eye medicine, measles, uterine fertiliser, menstrual pain and itching medicine.

As for the dosage for the use of varied medicinal herbs, some are drunk sufficiently, one tablespoon, one teaspoon, some are taken with half a glass and some are taken with a full of glass, if in the form of herbs as much as one glass for 2 or 3 times a day and the most effective time to drink the potion, namely in the morning and evening preferably after eating and some are directly smeared and dripped on the body parts that require it. The diversity of plants in Sipituhuta Village, Pollung Subdistrict, Humbang Hasundutan Regency is quite high, it is seen from the availability that so much types of wild and cultivated medicinal plants, people in Sipituhuta Village only take and use plants as needed, so that plants that are still small and young may have the potential to grow and develop. and avoid from its extinction.

Based on the results of the study, it is known that modern health facilities in the village of Sipituihuta are already available, but the community still tends to prioritize traditional medicine because the ingredients are safer and cheaper and widely available in the yard. From an economic point of view, the existence of these medicinal plants is enough to help the community to get additional rupiah, because medicinal plants are quite sold out in the

market. In improving the health problems of medicinal plants, it is also very helpful for the people of Sipituhuta village because the drugs will not feel the side effects of the herbal ingredients they make, in contrast to the people who depend on synthetic drugs in addition to the prices are quite expensive, which also have worrying side effects. In addition to increase family income, it is also to preserve traditions and save their money for medical expenses.