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Identification of the Diversity of Medicinal Plants Used by Battra in North Bengkulu

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Abstract: All kinds of plants that are found in nature and have medicinal properties are considered medicinal plants. Utilization of medicinal plants can be used directly and mixed. *Battra* is a person who has knowledge of traditional medicine and is capable of concocting medicinal plants. North Bengkulu is one of the districts that still use conventional medical care. Utilizing medicinal plants that are proven to be able to treat those derived from natural ingredients can be healthful because of very few side effects compared to drugs that contain chemicals. The goal of the study was to catalog the various medicinal herbs used by *Battra* North Bengkulu. This study used 10 respondents' interviews as its approach. *Battra* uses 64 species from 37 families of medicinal plants as traditional medicinal ingredients. The most common type of *family is Fabaceae*. The habitus group that is widely used is 45% trees. Types of diseases that are commonly treated traditionally using these plants include fever, toothache, itching, cramps, internal heat, scales, stomach pain, malaria, long-term fever, colds (cholera), ulcers, lungs, kidney stones, jaundice, high blood pressure, appendicitis, fussy children, eye disease, intestinal worms, kesapo, sprains, tumors and gout. In the processing of medicinal plants by *Battra* in North Bengkulu, 11 processes the highest drug processing method was by boiling as much as 37%.

Keywords: Medicinal plants; North Bengkulu; Traditional medicine.

Introduction

Being a tropical nation, Indonesia is well renowned for having a lot of natural richness. According to reports, this nation is primarily agricultural and has large plantations and agricultural lands where it is possible to grow plants with medicinal potential. Due to the abundance of medicinal plants in Indonesia, especially in rural regions, the majority of the population treats illnesses with traditional herbal medicines called jamu (Woerdenbagb & Kayser, 2014). It is thought that Indonesia is home to 100 to 150 families of medicinal plants, the majority of which are employed in food production, pharmaceuticals, and industrial processes. The abundance of natural resources that are currently possessed must be used and conserved (Mulisa et al., 2016).

Traditional medicine is an approach to healing that draws on inherited ancestor knowledge and is applied without the use of contemporary medical science. Even though modern medicine is seldom employed, it turns out that traditional medicine is still frequently used to treat illnesses in rural areas. While using medicinal plants can result in chemical reactions from the plant, no additional chemicals are added. For thousands of years, people have employed plants to treat a variety of human illnesses. Tradition, specifically the ancestors, is where the use of medicinal herbs comes from. This knowledge has been retained for modern use (Savitri, 2016).

According to (Murugesan et al., 2019) medicinal plants are a rich source of several natural compounds with varied pharmacological effects. Using medical plants does not involve the addition of chemicals, yet each medicinal plant has a unique phytochemical profile. For products used every day like food, cosmetics, and fragrances, many plants are rich sources

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of extraction (Ullah et al., 2023). Traditional Indonesian medicine has traditionally made use of biodiversity. It is considered that local knowledge and wisdom may both treat and heal this illness. Some therapeutic herbs need to be compounded before they may be utilized directly (Susanti & Sukaesih, 2017). If done with appropriate and proper care, the plants that are processed and used have the potential to be employed as medicinal herbs. It is impossible to separate the traditional compounding of medicinal herbs from the common ease of management techniques like mashing, boiling, burning, and others.

In rural places, those who are truly knowledgeable and accustomed to using therapeutic plants combine medicinal herbs. Being able to comprehend traditional medicine, Battra is capable of combining and processing medicinal plants to create medicines (Tarigan et al., 2022). Through the lineage his forefathers left behind, Battra learned about conventional medicine in general. Before seeking treatment, people in North Bengkulu still rely on Battra's traditional medicine. The Battra people of North Bengkulu practice traditional medicine using plants that have been used by their ancestors and have medicinal properties. It is impossible to divorce Battra's expertise in traditional medicine from her experience and the available natural resources. the discovery of several trustworthy battras who still employ a range of healing plants in the village.

In addition to being able to preserve plant diversity and increase the use of nature, medicinal plants are used as proof that they have promising development possibilities. It is crucial to preserve the wealth of the land so that the variety of medicinal plants and their functions can be passed along. The benefits of traditional medicine come from a variety of experiences, starting with the fact that herbs can still be used to treat ailments that cannot be cured by conventional medical care (Utami, 2008). Many people in North Bengkulu still utilize medicinal plants as traditional medicine because they have properties that can treat sickness, enhance health, and have fewer negative effects than chemical medicines from doctors. This is because medicinal plants have strong prospects and the environment is favorable. It is challenging to assess the safety and efficacy of alternative medicines since they do not require the same level of formal government approval as produced medications (Naveed et al., 2020).

In addition, numerous studies have identified the use of medicinal plants by Battra, such as those conducted by (Aminah et al., 2016). in Sejahtera Village, Sukanda District, North Koyang District, (Gunawan et al., 2022), in Sotok Village, Sanggau Regency, and (Murniati et al., 2016) in South Sulawesi Regency for the treatment of tuberculosis. in the Central Bengkulu Regency, among the Lembak Eight Tribe (Setyowati et al., 2009).The research mentioned above demonstrates that battra uses therapeutic plants. This identification demonstrates how widely medicinal plants are used in Indonesia. The several applications of this medicinal plant are not yet widely known by the general people, particularly in North Bengkulu. Two factors, mainly a lack of knowledge or complacency about how sophisticated medical care has become in recent years, are to blame for this.

Indonesia's Bengkulu province includes the district of North Bengkulu Regency. In addition to being on the shore, North Bengkulu Regency contains forests where a variety of plants, including one that can be used as medicine, grow. As a result, North Bengkulu Regency still has a large variety of medicinal plants. Studies on plants that can be used include the following: In Pasar Sebelat Village, North Bengkulu, 36 species were discovered in 24 families of medicinal plants (Br. Sitorus et al., 2019). As many as 21 types of plants are employed as medicinal plants, and they are dispersed across the protected forest of Bukit Gedang Hulu Lais in Tanah Hitam Village, Padang Jaya, North Bengkulu (Supriati, 2012). Researchers are aiming to identify the variety of medicinal plants used by North Bengkulu Battra as a result of their results.

Method

The research was conducted in North Bengkulu Regency in 10 sub-districts, namely, Ketahun sub-district, Batiknau sub-district, Air Padang sub-district, Lais sub-district, Air Besi sub-district, Air Napal sub-district, Tanjung Agung sub-district, Tanjung Agung Palik sub-district, Hulu Palik sub-district, and Arma Jaya sub-district. The research was conducted from January to April 2023. This research used observation and interview methods with the *Battra* (Shaman) sample. Interview techniques were also carried out in the study of the ethnobotanical perspective of traditional medicinal plants from the Khattak Chonthra Karak tribe in which information is collected through semi-structured interviews (K. Rehman et al., 2015). Determination of the sample was carried out using purposive sampling, namely the sample *Battra* (traditional healers) who know the use of medicinal plants according to needs.

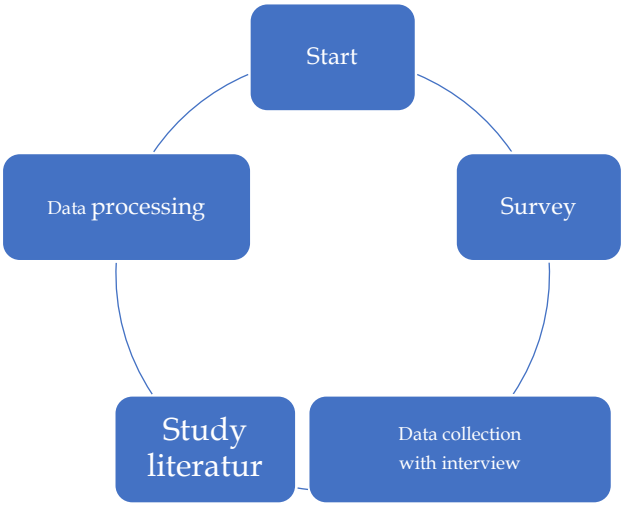

Figure 1. Research Scheme

Figure 2. Research Area: North Bengkulu

Interviews were conducted to learn more about the names of plants used as therapeutic plants and information about how to utilize plants as medicine, plant habitus, and the processing of medicinal plants used. In the data collection process, namely, primary data the process of observation and inventory in the field is direct. The data includes the type of disease, medicinal plants used, local names, Latin, how to concoct, and parts used. Information on all types of medicinal plants recorded is all plants are known to have medicinal properties.

Result and Discussion

The results of the study involved 10 respondents, namely *Battra* in North Bengkulu. *Battra* samples consisted of 7 Rejang *Battra* and 3 Javanese *Battra*. North Bengkulu Regency is located on the coast of the western part of Sumatra with the capital city Arga Makmur. The diversity of medicinal plants is still widely spread in the North Bengkulu district. In traditional medicine, *Battra* uses medicinal plants, while medical uses chemical drugs. In addition to the different types of treatment, traditional treatment has the advantage of being costly. (Utami, 2008) also explained the advantages that traditional medicine has from various experiences ranging from diseases that cannot be cured by medical treatment to those that can still be treated with herbs. Furthermore, based on *Battra's* research using 64 *species* of plant *species* used from 37 *families* as medicinal plants found in (Table 1. Types of medicinal plants used).

Table 1. Types of medicinal plants used

Scientific name Indonesian name (*) Local name (^)	*Family*
Citrus Aurantifolia Lime (*) Lemeu Mipis, lemau pid (^)	*Rutaceae*
Citrus Medica L Buffalo Eye Orange (*) lemeu kebeu (^)	*Rutaceae*
Lavanga Sarmentosa. Salung (*) Salung (^)	*Rutaceae*
Clausena Excavata Sicerek(*) Betonok (^)	*Rutaceae*
Piper Betle L. Betel (*) Senanep, Sirih, Kiben (^)	*Piperaceae*
Piper ornatum Red Betel (*) Senannep mileak, kiben abang (^)	*Piperaceae*
Piper Nigrum L. Pepper (*) Sahang (^)	*Piperaceae*
Cocos Nucifera L Green Coconut (*) Nyoa Ijo (^)	*Arecaceae*
Arenga pinnata Aren (*) Nau (^)	*Arecaceae*
Areca Catechu L. Betel nut (*) Bakeak	*Arecaceae*
Colocasia esculenta Forest taro (*) Tales imbo (^)	*Araceae*
Erythrina variegata Dadap (*) Cangkring (^)	*Fabaceae*
Derris Elliptica Tube (*) Tuai Balet (^)	*Fabaceae*
Vigna Unguiculata Long beans (*) Kacang Panjang (^)	*Fabaceae*
Archidendron Bubalinum Kabau (*) Kabeu, Kabea (^)	*Fabaceae*

Scientific name Indonesian name (*) Local name (^)	*Family*
Caesalpinia Bonduc	*Fabaceae*
Bonduc nut (*)	
Sangsea (^)	
Etlingera coccinea	*Zingiberaceae*
Tap (*)	
Puar (^)	
Alpinia Galanga	*Zingiberaceae*
Galangal (*)	
Lajo, Lengkuas (^)	
Zingiber purpureum	*Zingiberaceae*
Bengle (*)	
Mulai, mulei (^)	
Curcuma longa	*Zingiberaceae*
Turmeric (*)	
Kunik (^)	
Banana balbisianaa colla	*Musaceae*
Klutuk banana (*)	
Pisang katet (^)	
Musa acuminate	*Musaceae*
Mas Banana (*)	
Pisang Mas (^)	
Musa x Paradisiaca	*Musaceae*
Stone Banana (*)	
Pisang Batau (^)	
Ceiba Pentandra	*Malvaceae*
Kapok Randu (*)	
Kapok, Randuk (^)	
Durio zibethinus	*Malvaceae*
Durian (*)	
Dien (^)	
Hostalginea plantaginea	*Asparagaceae*
Horse Hoof (*)	
Sepdoi (^)	
Allium cepa	*Amaryllidaceae*
Red onion (*)	
Bawang Mileak (^)	
Allium Sativum	*Amaryllidaceae*
Garlic (*)	
Bawang Putiak(^)	
Diplopterygium bancroftii	*Gleicheniaceae*
Yellow Nail (*)	
Poong Kuning	
Dicranopteris linearis	*Gleicheniaceae*
Resam (*)	
Pakis imbo (^)	
Andrographis Paniculata	*Acanthaceae*
Sambiloto (*)	
Kina(^)	
Graptophyllum pictum	*Acanthaceae*
Black pudding (*)	
Pucuk puding (^)	
Lawsonia inermis	*Lythraceae*
Henna (*)	
Dawen inai (^)	
Duabanga moluccana	*Lythraceae*
Benuang (*)	
Benuang (^)	
Physalis angulate	*Solanaceae*

Scientific name Indonesian name (*) Local name (^)	*Family*
Ciplukan (*)	
Seletup (^)	
Solanum Melongena	*Solanaceae*
Eggplant (*)	
Telung (^)	
Datura Metel	*Solanaceae*
Amethyst (*)	
Kecubung (^)	
Oryza Sativa L.	*Poaceae*
Paddy (*)	
Pai (^)	
Cymbopogon Citratus	*Poaceae*
Lemongrass (*)	
Suei, Seei (^)	
Imperata Cylindrica	*Poaceae*
Reeds (*)	
Lalang (^)	
Elephantopus Scaber	*Asteraceae*
Palm Liman (*)	
Banai (^)	
Uncaria Gambir	*Rubiaceae*
Gambir (*)	
Gambea (^)	
Morinda Citrifolia	*Rubiaceae*
Noni (*)	
Mengkudu, blenew, denau (^)	
Rhodamnia Cinerea	*Myrtaceae*
Marpuyan (*)	
Marpuyan (^)	
Syzygium Polyanthum	*Myrtaceae*
Salam (*)	
Salam (^)	
Kalanchoe Pinnata	*Crassulaceae*
Cocoon Duck (*)	
Sergayau (^)	
Ananas comosus	*Bromeliaceae*
Pineapple (*)	
Nanas (^)	
Nepenthes L	*Nepenthaceae*
Nepenthes (*)	
Kantong Semar (^)	
Nephelium lappaceum	*Sapindaceae*
Rambutans (*)	
Rambutan (^)	
Sandoricum indicum	*Meliaceae*
Lute leaves (*)	
dawen kecapi (^)	
Tinospora Crispa	*Menispermaceae*
Brotowali (*)	
Ali-Ali, degalai (^)	
Ocimum basilicum L	*Lamiaceae*
Basil (*)	
Selasih (^)	
Boehmeria nivea (L)	*Urticaceae*
Rahamay (*)	
Keloi (^)	
Artocarpus altilis	*Moraceae*

Scientific name Indonesian name (*) Local name (^)	*Family*
Breadfruit (*) Sukun, suun (^) *Carica Papaya L.* Papaya (*) Keliki, Silo, Kates, Gedang (^) *Jasminum Sambac* Jasmine (*) Melati (^) *Donax Canniformis* Burden (*) Bemban, Pua (^) *Planchonia Valida* Putat (*) Putet (^) *Cotylelobium Melanoxylon* Raru (*) Aru(^) *Averrhoa bilimbi*	*Caricaceae* *Oleaceae* *Marantaceae* *Lecythidaceae* *Dipterocarpaceae* *Oxalidaceae*

Scientific name Indonesian name (*) Local name (^)	*Family*
Starfruit (*) Belimbing besai (^) *Acorus Calamus* Jeringau (*) Setokot (^) *Isotoma Longiflora* Kitolod (*) Bunga katarak (^) *Raphanus sativus* Turnip (*) Lobak (^) *Heliconia latispatha* Benth. *Bananas (*)* *Pisang baik (^)*	*Acoraceae* *Campanulaceae* *Brassicaceae* *Heliconiaceae*

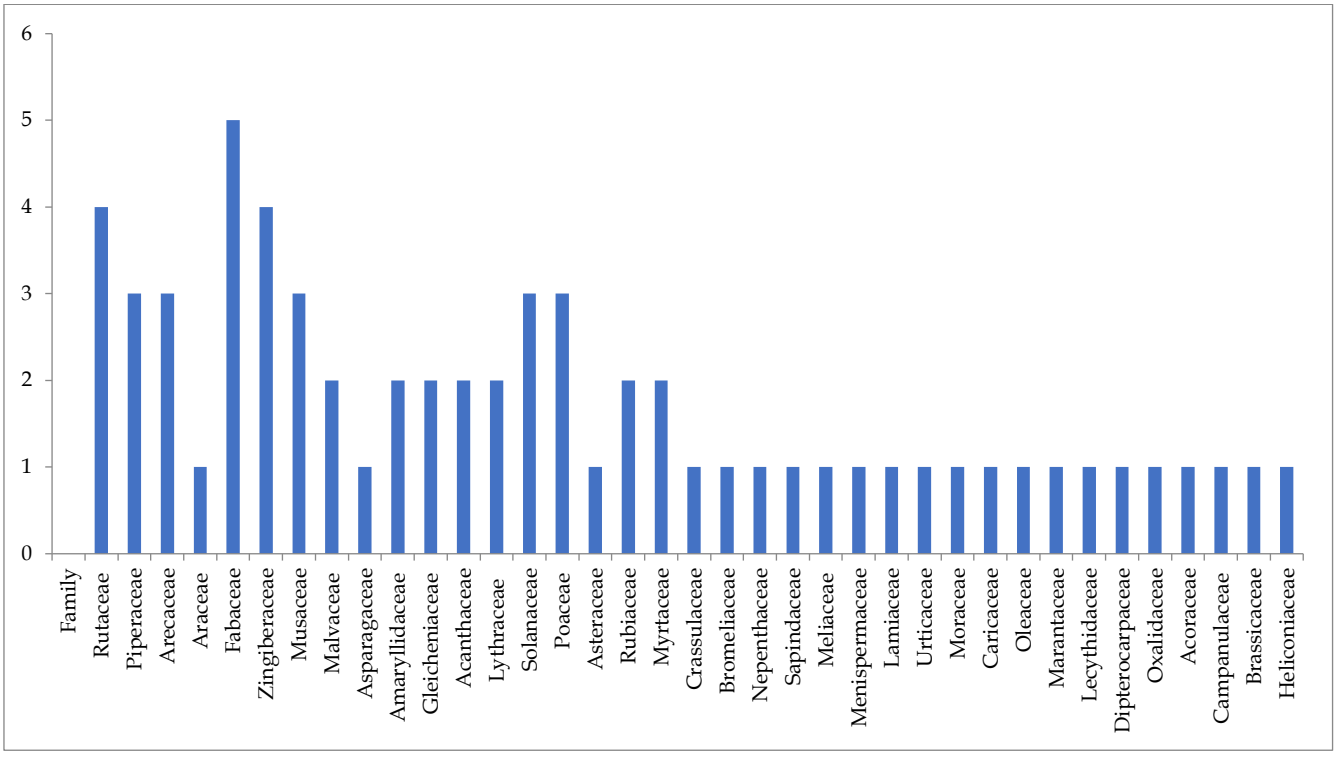

Figure 3. Number of Plants by Family

Species Of Plants

Based on Table 1, there are 64 *species* of plants used by *Battra* consisting of 37 *families*. Although many respondents used the same therapeutic plant varieties as medicinal ingredients, the types of diseases treated were different. The types of medicinal plants obtained can cure, among others, fever, itching, constriction, heartburn, scales, stomach pain, malaria, long-term fever, colds (cholera), ulcers (Opoi), lungs, kidney stones, jaundice, blood high, appendicitis, fussy children, eye disease, intestinal worms, tasapo, sprains, tumors, sores, and gout. Without realizing it, medicinal plants secrete various chemical compounds as secondary metabolites, including terpenoids, flavonoids, phenolic acids, alkaloids, and others. This makes medicinal plants can be used traditional medicine (Khouchlaa et al., 2023).

Of the 37 families used, the most widely used Battra families were 5 *Fabaceae*, 4 *Zingiberacea, and 4 rutaceae* (Figure 3. Number of plants by family). The *family* that is widely used is the *Fabaceae family*; this is the same as research on medicinal plants in Sungai Jerih Village, Rupit District, Musi Rawas Regency, South Sumatra, of the 98 plant *species*, the largest family is *Fabaceae* (Fujihastuti, et al. 2022). Furthermore, this is not in line with research in the province of Driouch (northeast Morocco) The diversity of medicinal plants is mostly found in the four plant families with the highest representation: *Lamiaceae* (15 *species* and 9 *genera*), 9 *Fabaceae* (13 *species* and 11 *genera*), *Asteraceae* (12 *species* and 11 *genera*), and *Apiaceae* (12 *species* and 12 *genera*) (Mohammed et al., 2021).

The study found that it consisted of 5 groups of *fabaceae* plant species, namely: Dadap (Cangkring) *Erythrina variegata*, Tuba (Tulai ballet, tube) *Derris Elliptica*, kabau (Kabeu, Kabea) *Archidendron Bubalinum,* Kabiul (Sangsea) *Caesalpinia Bonduc*, long beans (Peanuts) *Vigna Unguiculata*. Dadap leaves (Cangkring) are used as a medicine for fever and heartburn. Battra believes that dadap leaves can reduce heat because dadap leaves have a cold sensation so leaves can be used as compresses. This is also reinforced by research that shows the similarity of people in Bali who use data leaves as a traditional compression medicine for generations (Pariata et al., 2022).

Apart from *Fabaceae*, the *Zingiberaceae family* consists of 4 plant *species*, namely: Tepus (Puar) *Etlingera Coccinea*, *galangal* (Lajo) *Alpinia Galanga*, bangle (Start) *Zingiber purpureum*, and *turmeric* (kunik) *Curcuma Longa*. The high utilization of the Zingiberaceae *family* by *Battra* is due to the ingredients contained therein. In herbal medicine, many types of diseases can be cured using *turmeric rhizome* (Winarto, 2002). This medicinal plant, which has many benefits, and is nicknamed yellow, apart from being a spice, is used by Battra to treat ulcers (Opoi), itching, intestinal worms, and allergies (Adea). This is because some bioactive compounds derived from traditional plants manifest the ability to reverse antibiotic resistance and improve synergetic action with current antibiotic agents (Mickymaray, 2019).

In other studies, it was also shown that the use of the *Zingiberaceae* family by *Battra* such as Battra in Doulu Village, Karo Regency (Tarigan et al., 2022). Unlike the case with research in the Kakar region of Balochistan Pakistan. Range **w**ith ten *species* apiece, the *Lamiaceae* and *Asteraceae* plant *families* were shown to be prominent in terms of medicinal use (S. Rehman et al., 2022).

The use of medicinal plants used by *Battra* also varies greatly, as it is known that amethyst (*Datura metel L*) has dangerous compounds, but with the correct compounding process, amethyst (*Datura metel L*) can be used by *Battra* as a headache remedy and fever. Similar to studies in other places, one of which was on Batan and Sabtang Islands (Batanes Islands Group, Philippines) which used amethyst (*Datura metel L*) as an asthma medication by boiling it (Raterta et al., 2014).

In general, the people of North Bengkulu Regency before carrying out medical treatment using chemical drugs, the community first used traditional medicine to treat their illnesses. Apart from North Bengkulu Regency, the use of medicinal plants are also used in all other Regency areas. One of them is the use of medicinal plants for the Dayak people. 73 species are known and used by the community as medicine (Diana & Matius, 2017). In addition, there are 38 *species* of plants found in 23 orders of 24 *families* in North Sumatra which are used as alternative daily medicines. Knowledge of medicinal plants so that people have cultivated several medicinal plants in gardens and yards (Lestari, 2016). 72 types of plants belong to the 32 families of medicinal plants of the Rejang tribe in Pulo Geto Village, Merigi District, Kepahiang Regency (Windayani et al., 2018). 77 plant species from 46 families that have been identified as being utilized in traditional medicine to treat a variety of illnesses. The most often used family was *Lamiaceae*, with 11 *species*, followed by *Fabaceae*, with 5, *Asteraceae*, *Polygonaceae*, and *Rosaceae*, each with 4, while the remaining *families* each contributed one, two, or three *species* on wild medicinal plants in Arang Valley, Bajaur District, Khyber Pakhtunkhwa, Pakistan (Haq et al., 2023).

In addition, the people of Northeastern Morocco also use medicinal plants where it was recorded that 283 species were regrouped into 80 botanical families. The most represented family is Asteraceae. The highest use value (UV) is given by Allium sativum L. (UV= 0.23), and the highest Family Use Value (FUV) was given by *Amaryllidaceae* (FUV=0.116) (Ilyass et al., 2021). In this study, the *Amarylidaceae family* found 2 species, namely, shallots (*Allium Cepa*) and garlic (*Allium Sativum*). In traditional medicine, red onion (*Allium Cepa*) is used as a remedy for colds, and fever, while garlic (*Allium Sativum*) is used as a remedy for toothache, fever, and colds. For processing, several respondents (*Battra*) use different methods. 2 respondents mentioned using crushed garlic and then sticking it to the toothache, while 2 respondents used fried shallots and garlic to cure colds. As for fever, it is only used as a means of scraping with the addition of coconut oil. Although *Batrra* is used traditionally, it turns out that garlic (*Allium sativum*) contains bioactive compounds such as organosulfur, phenol, and saponins with biological activities, namely antioxidant, immunomodulatory, anticancer, anti-inflammatory, hepatoprotective, cardiovascular protector, antidiabetic, antiobesity, kidney protective,

antibacterial, neuroprotective, and antifungal (Tavares et al., 2021).

Habitus of Medicinal Plants Used By Battra

Based on *Battra's* knowledge of traditional medicine, there are habitus groups that are used in different sub-districts. The study's findings are displayed in (figure 4. habitus groups). Based on the table, the habitus of medicinal plants used by Battra are trees, shrubs, shrubs, lianas and herbs (figure 4).

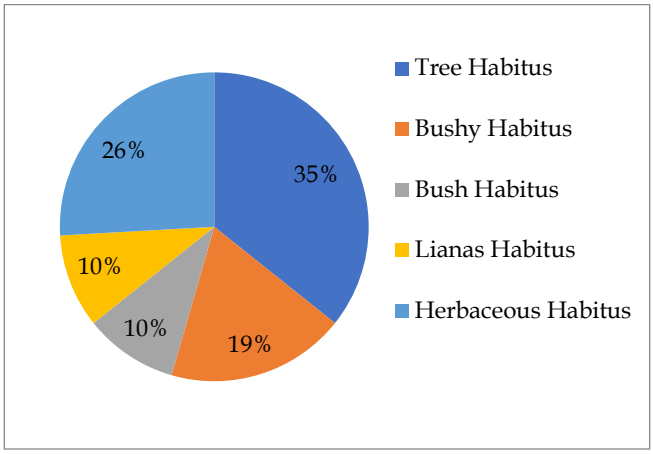

Figure 4. Habitus groups

It can be seen from the 10 sample respondents that the highest type of habitus used by *Battra* was trees 35%. However, this is slightly different from the research (Pagea et al., 2022). in the habitus study used by Battra in Sepang Village, Mempawah District, the herbaceous habitus level is used more often because it can be obtained in yards, forests, or rice fields. This difference is thought to be in the habitus of trees in the North Bengkulu environment that can be put to use.

Processing Method

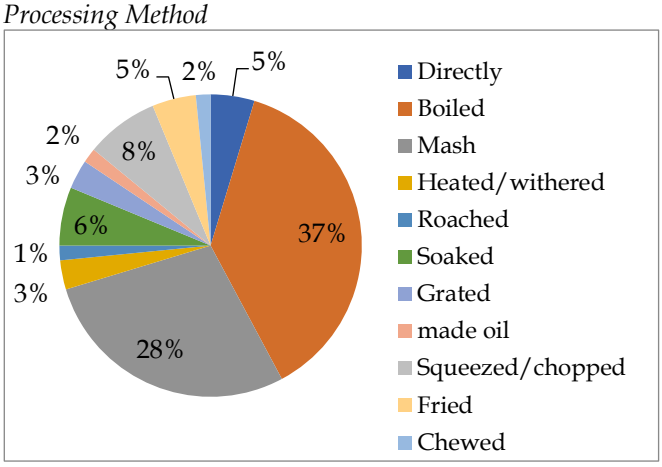

Figure 5. Diagram How to Process

When treating medicinal herbs by Battra in North Bengkulu, 11 processes were found, among others, by pounding, boiling, direct, chewing, frying, squeezing, oiling, withering, grating, soaking, and roasting. It can be seen in the results of the study (Figure 3) that the highest drug processing method was by boiling as much as 37%. This is in line with various studies, one of which is, such as in Sepang Village, Mempawah Regency (Pagea et al., 2022). Battra of the Malay tribe in Samustida Village, Sambas Regency (Loresa et al., 2023). Further processing of traditional medicines in remote areas of Manga Changa Forest, Pakistan The most widely used preparations were decoctions (36.10%), pastes (16.70%), juices (11.10%) followed by bandages, vapors, extracts, and ashes (Sharif et al., 2024). However, in contrast to studies conducted in the Himalayan region of Bhutan, PR China, India, Nepal, and Pakistan, directly processed plant materials (pastes, juices, powders) were most often used. Hydrophilic preparations (decoction, poultice, and infusion) were recorded in 114 (14.2%) (Heinrich et al., 2021).

The method of processing used by *Battra* is generally still very traditional. Sharpened, and kneaded (Sastrawiyadi et al., 2022). The boiled processing method obtained during the study used well water and rice juice. The amount of water used according to Battra is 1.3 and 7 glasses. The process of boiling using 7 cups of water must wait for the water to recede up to 3 cups. In this process usually, the way of consumption is bathing and drinking.

In processing traditional medicine in North Bengkulu this is pounded using stones. The stone is not millstone but a stone that is in a possible environment. The local *Battra* believed that pounding the medicinal ingredients using millstones would make them less effective and make the millstones stink. In general, after being pounded, the medicinal ingredients will be affixed to the part that hurts. Before the ingredients are affixed, the mixture for colds (cholera) is put in the shell, and then divided into 3 parts, wrapped using tie leaves with cloth attached to the abdomen. Furthermore, special processing is also found in the method of heating, where the betel leaf plant is smeared with green coconut oil, while the noni leaves (denau) are only heated over moderately hot coals until they wilt. Further processing is done using only green coconut oil. This belief has faith and has become a habit of *Battra*.

Conclusion

The people of North Bengkulu still use traditional medicine with Battra. Treatment carried out by *Battra* utilizes the diversity of existing medicinal plants. This belief in traditional medicine is thought to be due to traditional medicine using natural ingredients. Types of medicinal plants used by *Battra* There are 64 species of

medicinal plants from North Bengkulu representing 37 *families*. The greatest utilization is *Fabaceae*. Based on the habitus used in the diversity of medicinal plants, the highest habitus used is trees, about 45%. Method of processing traditional medicine by boiling 37%.

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Conflicts of Interest
The authors declare no conflict of interest regarding the publication of this paper.

References

Aminah, S., Wardenaar, E., & Muflihati. (2016). Tumbuhan obat yang dimanfaatkan oleh battra di desa sejahtera kecamatan sukadana kabupaten kayong utara. *Jurnal Hutan Lestaristari*, *4*(3), 299–305. http://dx.doi.org/10.26418/jhl.v4i3.16144

Br. Sitorus, A. O., Kasrina, K., & Ansori, I. (2019). Pengembangan LKPD Berdasarkan Tanaman Obat Suku Pekal. *Diklabio: Jurnal Pendidikan Dan Pembelajaran Biologi*, *3*(2), 185–194. https://doi.org/10.33369/diklabio.3.2.185-194

Diana, R., & Matius, P. (2017). Inventarisasi Tumbuhan Berkhasiat Obat Yang Dimanfaatkan Masyarakat Suku Dayak Lundayeh. *ULIN: Jurnal Hutan Tropis*, *1*(1), 49–58. https://doi.org/10.32522/ujht.v1i1.845

Gunawan, I., Arbiastutie, Y., Yusro, F., Mariani, Y., Kehutanan, P., Universitas, K., Pontianak, T., Barat, K., & Koresponden, I. *. (2022). Pemanfaatan Tumbuhan Obat oleh Battra pada Tiga Dusun di sekitar Hutan Tembawang Desa Sotok Kabupaten Sanggau. *Serambi Engineering*, *VII*(3). Retrieved from https://ejournal.unib.ac.id/jppb/article/view/5142

Haq, A., Badshah, L., Hussain, W., & Ullah, I. (2023). Quantitative ethnobotanical exploration of wild medicinal plants of Arang Valley, District Bajaur, Khyber Pakhtunkhwa, Pakistan: a mountainous region of the Hindu Kush Range. *Ethnobotany Research and Applications*, *25*. https://doi.org/10.32859/era.25.55.1-29

Heinrich, M., Jiang, H., Scotti, F., Booker, A., Walt, H., Weckerle, C., & Maake, C. (2021). Medicinal plants from the Himalayan region for potential novel antimicrobial and anti-inflammatory skin treatments. *Journal of Pharmacy and Pharmacology*, *73*(7), 956–967. https://doi.org/10.1093/jpp/rgab039

Ilyass, A. M., Loubna, K., Noureddine, B., & Mostafa, E. (2021). Ethnobotanical profile of medicinal plants used by people of North-eastern Morocco: Cross-cultural and historical approach (part I). *Ethnobotany Research and Applications*, *21*(1), 1–45. https://doi.org/10.32859/ERA.21.34.1-45

Khouchlaa, A., El Baaboua, A., El Moudden, H., Lakhdar, F., Bakrim, S., El Menyiy, N., Belmehdi, O., Harhar, H., El Omari, N., Balahbib, A., Park, M. N., Zengin, G., Kim, B., & Bouyahya, A. (2023). Traditional Uses, Bioactive Compounds, and Pharmacological Investigations of Calendula arvensis L.: A Comprehensive Review. *Advances in Pharmacological and Pharmaceutical Sciences*, *2023*. https://doi.org/10.1155/2023/2482544

Lestari, P. (2016). Studi Tanaman Khas Sumatera Utara Yang Berkhasiat Obat. *Jurnal Farmanesia*, *147*(March), 11–40. Retrieved from https://adoc.pub/112016-studi-tanaman-khas-sumatera-utara-yang-berkhasiat-oba.html

Loresa, D., Yusro, F., & Mariani, Y. (2023). Pemanfaatan Tanaman Pekarangan Sebagai Bahan Obat Tradisional oleh Battra Suku Melayu di Desa Samustida Kabupaten Sambas. *Jurnal Serambi Engineering*, *8*(2). https://doi.org/10.32672/jse.v8i2.5550

Mickymaray, S. (2019). Efficacy and Mechanism of Traditional Medicinal Plants and Bioactive Compounds against Clinically Important Pathogens. *Antibiotics*, *8*(4), 257. https://doi.org/10.3390/antibiotik8040257

Mohammed, A., Jamila, F., & Mostafa, E. (2021). First insight on ethnobotanical appraisal of plants used traditionally as medicine by berber community (Amazigh-speaking), living in driouch province (north-eastern morocco). *Ethnobotany Research and Applications*, *22*. https://doi.org/10.32859/ERA.22.24.1-71

Mulisa, Hayatun, A., Reni, F. R., Putri, A. N., Mirnawati, E., Haryati, Apriati, M., Nurul, Z. P., Nurlailah, Serlin Mahdalena, Natalia, N., & Azmin, N. (2016). Studi Keanekaragaman Tumbuhan Obat Tradisional Di Wilayah Bendungan Mila Kabupaten Dompu. *JUSTER: Jurnal Sains Dan Terapan*, *1*(2), 1–23. Retrieved from https://jurnal.jomparnd.com/index.php/js/articl

e/view/104

Murniati, Patandung, G., & Putri, I. A. (2016). Inventarisasi Tanaman Obat Tradisional Untuk Pengobatan Tuberkulosis Oleh Battra Di Wilayah Kerja Puskesmas Kabupaten Gowa Sulawesi Selatan. *Jurnal Farmasi Sandi Karsa*, *5*, 1–23. https://doi.org/10.36060/jfs.v5i1.41

Murugesan, S., Lakshmanan, D. K., Arumugam, V., & Alexander, R. A. (2019). Nutritional and therapeutic benefits of medicinal plant Pithecellobium dulce (Fabaceae): A review. *Journal of Applied Pharmaceutical Science*, *9*(7), 130–139. https://doi.org/10.7324/JAPS.2019.90718

Naveed, M., Majid, F., Taleb, A., Zubair, H. M., Shumzaid, M., Farooq, M. A., Faran, Baig, M. M. A., Abbas, M., Said, M., & Changxing, L. (2020). A Review of Medicinal Plants in Cardiovascular Disorders: Benefits and Risks. *American Journal of Chinese Medicine*, *48*(02), 259–286. https://doi.org/10.1142/S0192415X20500147

Pagea, A. C., Yusro, F., & Mariani, Y. (2022). Keragaman Jenis Tanaman Obat Tradisional yang dimanfaatkan oleh Battra di Desa Sepang Kabupaten mempawah. *Jurnal Serambi Engineering*, *7*(4), 3827–3836. https://doi.org/10.32672/jse.v7i4.4817

Pariata, I. K., Mediastari, A. A. P. A., & Suta, I. B. P. (2022). Manfaat Dadap Serep (Erythrina Sumbubrans) Untuk Mengatasi Demam Pada Anak. *Widya Kesehatan*, *4*(1), 38–46. https://doi.org/10.32795/widyakesehatan.v4i1.2803

Raterta, R., Guzman, G. Q. De, & Alejandro, G. J. D. (2014). Assessment , Inventory and Ethnobotanical Survey of Medicinal Plants in Batan and Sabtang Island (Batanes Group of Islands , Philippines). *International Journal of Pure and Applied Bioscience*, *2*(4), 147–154. Retrieved from https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=d8f72fc3ddcfa8d21043dd7f21e5b98a7dd5c19a

Rehman, K., Mashwani, Z.-R., Khan, M. A., Ullah, Z., & Chaudhary, H. J. (2015). An ethno botanical perspective of traditional medicinal plants from the Khattak tribe of Chonthra Karak, Pakistan. *Journal of Ethnopharmacology*, *165*(13), 251–259. https://doi.org/10.1016/j.jep.2015.02.03

Rehman, S., Iqbal, Z., Qureshi, R., Ur Rahman, I., Khan, M. A., Elshaer, M. M. A., Al Farraj, D. A., Elshikh, M. S., Younas, M., Sakhi, S., Nawaz, G., Ali, N., Rahim, F., Ali, H., Khan, I., Rahman, S. U., & Abu Bakr Elsaid, N. M. (2022). Ethnogynaecological Knowledge of Traditional Medicinal Plants Used by the Indigenous Communities of North Waziristan, Pakistan. *Evidence-Based Complementary and Alternative Medicine*, *2022*. https://doi.org/10.1155/2022/6528264

Sastrawiyadi, E., Siswahyono, & Susatya, A. (2022). Jenis-Jenis Tumbuhan Obat Yang Dimanfaatkan Oleh. *Journal of Global Forest and Environmental Science, 2*(3), 22–41. Retrieved from https://ejournal.unib.ac.id/jhutanlingkungan/article/view/25718

Savitri, A. (2016). *tanaman ajaib! basmi penyakit dengan TOGA : (tanaman obat keluarga)*. Bibit publisher.

Setyowati, N., Kasrina, Yani, A. P., & Piskasari, R. (2009). Jenis-Jenis Gulma yang Berpotensi sebagai Tanaman Obat bagi masyarakat Desa Taba Teret, Taba Penanjung, Bengkulu. *Pros Sem Nas Etnobotani 4*, 288–292. Retrieved from https://ejournal.unib.ac.id/jppb/article/view/5142

Sharif, A., Shah, N. A., Rauf, A., Hadayat, N., Gul, A., Nawaz, G., Sakhi, S., Iqbal, M., Khan, M. R., Shah, A. A., Azam, N., Iftikhar, H., Shah, S. A., Bahadur, S., Hussainn, F., & Shuaib, M. (2024). Ethnomedicinal uses of plants for various diseases in the remote areas of Changa Manga Forest, Pakistan. *Brazilian Journal of Biology*, *84*, 1–33. https://doi.org/10.1590/1519-6984.255916

Supriati, R. (2012). Konservasi Hayati. *Jurnal Ilimiah*, *5*(1), 74–80. Retrieved from https://ejournal.unib.ac.id/index.php/hayati40

Susanti, S., & Sukaesih, S. (2017). Kearifan Lokal Sunda Dalam Pemanfaatan Tanaman Berkhasiat Obat Oleh Masyarakat Cipatat Kabupaten Bandung Barat. *WACANA, Jurnal Ilmiah Ilmu Komunikasi*, *16*(2), 291. https://doi.org/10.32509/wacana.v16i2.55

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

Tavares, L., Santos, L., & Noreña, C. P. Z. (2021). Bioactive compounds of garlic: A comprehensive review of encapsulation technologies, characterization of the encapsulated garlic compounds and their industrial applicability. *Trends in Food Science & Technology*, *114*, 232–244. https://doi.org/10.1016/j.tifs.2021.05.019

Ullah, I., Ullah, I., Ali, M., Durrani, F., Khan, S. U., Hussain, D., Mehmood, S., Sami Ullah Khan a, M. U., Hussain, K., Bahadur, S., Aneva, I. Y., & Bussmann, R. W. (2023). Quantitative study of medicinal plants and biological activities of two common species used by inhabitants of district

Bannu, Pakistan. *Acta Ecologica Sinica*, *43*(2), 271–287. https://doi.org/10.1016/j.chnaes.2021.08.006

Utami, P. (2008). *Buku pintar tanaman obat*. PT Agromedia Pustaka.

Winarto, W. P. (2002). *khasiat & manfaat kunyit*. Agro Media Pustaka.

Woerdenbagb, H. J., & Kayser, O. (2014). Jamu: Indonesian traditional herbal medicine towards rational phytopharmacological use. *Journal of Herbal Medicine*, *4*(2), 51–73. https://doi.org/10.1016/j.hermed.2014.01.002