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Ethnobotanical Identification of Medicinal Plants Used by the Sangihe Tribe in Sangihe Archipelago District, North Sulawesi

A. Hadian Pratama Hamzah[1*], Nurhasanah[1], Sri Harijati[2], Sinthia Brigyta Pangerapan[1], Cicik Suriani[3]

[1] Program Pascasarjana Program Magister Studi Lingkungan, Magister Studi Lingkungan, Universitas Terbuka, Banten, Indonesia.
[2] Fakultas Sains dan Teknologi Program Studi Agribisnis Universitas Terbuka, Banten, Indonesia.
[3] Fakultas MIPA, Program Studi Pendidikan Biologi, Universitas Negeri Medan, Sumatera Utara, Indonesia

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Corresponding Author:
A. Hadian Pratama Hamzah
hadian@ecampus.ut.ac.id

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Abstract: Ethnobotany is a field of science that studies the relationship between humans and plants. Ethnobotany is used by the community to document traditional knowledge such as the manufacture of traditional medicines obtained from generations of knowledge. Medicinal plants are extracted by hereditary methods by the Sangihe tribe which have medicinal properties. Sangihe is one of the large islands in the Sangihe and Talaud Islands group which stretches between the northern tip of Sulawesi Island and the southern tip of Mindanao Island in the Philippines. The use of medicinal plants by the people of Sangihe Regency has not been widely disclosed, so it is necessary to identify the medicinal plants used by the Sangihe tribe. The type of research used is explorative descriptive using research techniques in the form of exploration, the methods used are observation, interviews, documentation and plant inventory. The results obtained from this study are the use of plants as medicine by the Sangihe tribe, there are 29 species with 29 types of diseases. The use of medicinal plants by the Sangihe tribe is by boiling, drying or squeezing them by taking the extract from the water in the leaves. Medicinal plants used can also be eaten directly, smeared, mashed or mashed. The pattern of distribution of these plant species varies, growing in groups and also independently, scattered in several areas, even abroad.

Keywords: Ethnobotany; Medicinal Plants; Sangihe

Introduction

Indonesia has various kinds of plants, many people use plants as medicine, apart from their many benefits, spice plants are also used as medicine without causing harmful side effects to the human body. Indonesia has 30 thousand types of flora that grow (Arsyah, 2014; Saleh et al., 2022). Utilizing plants as traditional medicine is one of the hereditary events carried out by the people of Indonesia, not only as medicinal plants, they are also used as ingredients for food, cosmetics, beverages, and medicines. The use of plants as basic ingredients for medicine is included in the study of ethnobotany science (Nasution et al., 2020; Nurchayati & Ardiyansyah, 2018).

Ethnobotany is a field of science that studies the relationship between humans (ethnic/community groups) and their interactions with plants (Kandowangko, 2014; Tima et al., 2020). According to Utami et al. (2019) ethnobotany is a scientific study that studies the relationship between the use of plants by the community which has been carried out for generations, the aim of which is as basic knowledge in maintaining human life. Ethnobotany is also a pure scientific research that utilizes traditional knowledge by using experience in advancing the quality of life for humans and the environment. This knowledge is not documented and it is feared that it will erode along with the loss of natural habitats and the extinction of medicinal plants, especially forest plants due to excessive land exploitation and conversion (Helmina & Hidayah, 2021).

Ethnobotany is the science that studies the relationship between plants and ethnic or community

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groups, ethnobotany is also defined as the science that studies the relationship between plants and humans, the intended plants are plants that are able to provide benefits to humans. Ethnobotany is related to traditional knowledge and understanding of the community in relation to the context of existing local beliefs and culture. Ethnobotany includes the branches of ethnobiology, ethnozoology, ethnoecology, ethnomycology, ethnomedicine, ethnopharmacology and ethnoveterinary, by integrating biological knowledge into plants regarding anthropological knowledge or ways to use plants from the social and cultural views of the community (Priyambodo & Wilujeng, 2022). Ethnobotany is used by the community to document traditional knowledge in the community to find out scientifically the knowledge they have in supporting life, through re-reading research results compiled practically by researchers (Suryadarma, 2008).

In modern life, more than a hundred species of plants are known as a source of food, but actually thousands of species of plants have been used in various parts of the world by various ethnic groups. Ethnic groups are understood as populations of people or residents who have unique characteristics, which are recognized by other ethnic groups. Its uniqueness is reflected in the following characteristics; (1) being able to reproduce and survive biologically, (2) having the same cultural values, and being aware of a sense of togetherness, (3) forming a network of communication and interaction, (4) having its own group characteristics that are accepted by other groups (Suryadarma, 2008).

Medicinal plants can be used by the community by selecting plants according to the disease they are suffering from. In treating disease, more than one type of plant can be used in the form of medicinal ingredients such as herbs, param, semar, chewed gargling and so on. Explanations regarding the use of drugs especially to treat an illness such as cough, skin pain, stomach pain, rheumatism, shortness of breath, fever and headache. The introduction of ethnobotany can increase public knowledge of the potential use of plants as medicine so that they can improve the health and economy of the community (Atmojo, 2013).

Since ancient times, medical experts have made medicinal ingredients whose raw materials were taken from the forest. Indonesian forests are estimated to have the potential for medicinal plants of approximately 30,000 species, of which 940 species have been declared medicinal, and 78% are still obtained through harvesting directly from the forest (Nurrani, 2013; Supiandi et al., 2019). Plants that are used as medicines are believed by the community to have properties that can cure disease and are also used as basic ingredients for traditional medicine (Yuniati & Alwi, 2010). Medicinal plants are very closely related to traditional medicine, because most of the utilization of medicinal plants has not been based on clinical laboratory testing, but rather based on experience of use (Harmida et al., 2011).

As stated in SK Menkes No. 149/SK/Menkes/IV/1978, Ministry of Health of the Republic of Indonesia defines medicinal plants as 1) Plants or plant parts used as ingredients for traditional medicine or herbal medicine. 2) Plants or plant parts used as starting materials for medicinal raw materials. 3) Plants or plant parts extracted and the plant extracts are used as medicine.

Medicinal plants are used by people who live around the forest with knowledge that has been passed down from generation to generation (Hidayat & Hardiansyah, 2013). The use of medicinal plants is currently being carried out by many people, both in traditional ways and in modern ways by utilizing technology. The rapid development of technology has made traditional knowledge that has been passed down from generation to generation to be lost and extinct (Fakaubun, 2017; Syamsiah et al., 2021). Medicinal plants come from simple and pure plants that have not been processed and use parts of the plant body as ingredients for traditional medicines or herbal medicines for wound healing or as ingredients for other medicines. Medicinal plants are extracted by a hereditary method by the Sangihe tribe which has medicinal properties (Sarno, 2019).

Currently, there is less interest in the use of plants as medicine, one of which is from the new generation so that knowledge of managing plants as traditional medicine will become extinct. Perceptions about the concepts of illness, health, and the diversity of plant species used as traditional medicine are formed through a socialization process that has been trusted and believed to be true for generations (Pelokang et al., 2018). Since ancient times in the Land of Minahasa knowledge of traditional medicine has been known. Knowledge of these traditional medicinal plants tends to be known by certain groups or clans and not all members of the community or tribe members know it. North Sulawesi Province, which is divided into 14 administrative districts/cities, is the residential area of five indigenous communities, namely Talaud, Sangihe, Minahasa, Mongondow and Gorontalo (Kinho et al., 2011). One of the common uses of plants is carried out by the Sangihe Ethnic.

Sangihe is one of the large islands in the Sangihe and Talaud Islands group which stretches between the northern tip of Sulawesi Island and the southern tip of Mindanao Island in the Philippines. The use of medicinal plants by the people of Sangihe Regency has not been widely disclosed, this is due to knowledge

about traditional medicinal plants which tends to be known by certain groups.

Medicinal plants that grow in forests have several benefits for society including income, welfare, conservation of various resources, non-formal education, business continuity and employment and social security (Tyas et al., 2019). Sahinge is an archipelago that used to be part of the islands of Talaud and Sitaro. Sangihe is known as Sangir or Sanger. Sangihe comes from the word "Sangi'" which means Sumangi, sasangi, sasangitang, makahunsangi, mahunsangi, and masangi. Sangihe Archipelago Regency is located in the northernmost part of Indonesia which is directly adjacent to the Philippines (Sumolang, 2011).

Research conducted by Pelokang et al. (2018) states that the use of medicinal plants by the Sangihe tribe has 38 species and 25 families with cures for 22 types of diseases, these plant types come from the families Malvaceae, Acanthaceae, and Zingiberaceae by boiling, soaking, grated, crushed and dried, the part used is the leaves, which can produce many benefits. The types of medicinal plants found in Sangihe Regency include Cymbopogon citratus L., Zingiber officinale Rosc., Syzygium aromaticum L., Cinnamomum burmannii Bl., Myristica fragrans Houtt., Hemigraphis alternate Burm.f., Morinda citrifolia L., Abelmoschus manihot L., Curcuma longa L., Hibiscus tiliaceus L., Bryophyllum pinnatum (Lam.) Oken., Hippobroma longiflora L., Psidium guajava L., and Citrus aurantifolia Swingle (Pelokang et al., 2018).

In line with this, there are still many uses of medicinal plants by these ethnic groups that have not been scientifically recorded and disseminated through publications. So it is necessary to carry out ethnobotanical identification of plants used as traditional medicine by the Sangihe ethnicity. So the authors are interested in conducting research entitled "Ethnobotanical Identification of Medicinal Plants Utilized by the Sangihe Ethnic Community in Sangihe Archipelago District, North Sulawesi" where the formulation of the problem of the research includes identifying the types of plants and the names of medicinal plants consumed for generations by the Sangihe tribal community, knowing the forms conservation of medicinal plants carried out by the community based on local wisdom values in the Sangihe Islands Regency, how is the Pattern of Distribution of Plant Species in the Sangihe Islands.

Method

This research was conducted in April to May 2023, the research location was carried out in the Sangihe Tribe area in Sangihe Archipelago Regency, North Sulawesi. The type of research used is explorative descriptive using research techniques in the form of exploration to find out the types of plants used as traditional medicines for the Sangihe tribe (Hunter et al., 2019; Swedberg, 2020). Research with descriptive methods was carried out with the aim of describing everything including facts, opinions, attitudes of local people in managing plants as traditional medicines and existing phenomena. The method used is the Observation method by traveling down the road, then each type of plant used as a medicinal ingredient is recorded, interviews with the community and Sangihe tribal elders, Documentation in the form of photos and videos of Medicinal Plants and Plant Inventory to find out the taxonomy of these medicinal plants.

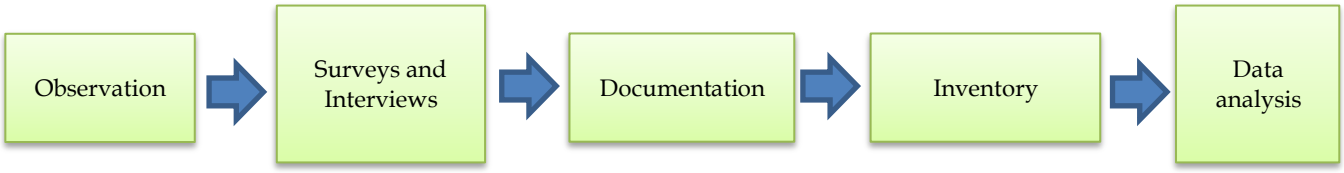

Figure 1. Research Flow

Result and Discussion

Types of plants and names of medicinal plants consumed for generations by the Sangihe people

The results of the ethnobotanical identification of medicinal plants used by the Sangihe ethnic group are 29 species of medicinal plants used by the Sangihe tribe as traditional medicine for generations, namely in table 1.

The form of medicinal plant conservation carried out by the community based on local wisdom values in Sangihe Islands Regency

The role of medicinal plants is very important for the community, therefore the habitat of medicinal plant species is very important (Irwanta et al., 2015)). Medicinal plants are usually used by people who live in forests, because, in forests there are 82% of the total species included in medicinal plants, medicinal plants live in lowland tropical forests. In these areas, forest

destruction is the most common, causing medicinal plants to become extinct. Therefore, it is necessary to conserve medicinal plants, especially those that are classified as rare and have economic value so that they can be easily obtained when needed and do not experience scarcity.

Table 1. Species of Medicinal Plants used by the Sangihe tribe

Species Name/Local	The type of disease
Lipang Wood/*Kayu Lipang*	Used as an antidote to poison / animal venom
Onion/*Sayor Bawang*	Medicine for stomach ailments, such as a lump in the stomach.
Tumbulawa/*Tumbulawa*	Medication for liver ulcers and stomach acid
Bone Wood/*Kayu Tulang*	Branches as drug salese. While the stain launches digestion that is affected by grains.
Candied Fruit/*Buah Manisan*	High blood pressure
Little Cotton Tree/Pohon Kapas Kecil	The fruit is eye drops, the leaves are salese medicine for broken bones
Memory Strengthening Wood/*Kayu Penguat Ingatan*	Memory booster leaves, bark as peho salese medicine
Tagalolo wood/*Kayu Tagalolo*	Used to reduce fever
Aloe vera/*Lidah Buaya*	For cough medicine and internal medicine
Tatate leaves/*Daun Tatate*	Cough medicine
Poke Vegetable/*Sayur Poki*	Ward off rabies
Garating	Sore throat
Laka	Medication for nails
Tahulending	Fever-reducing drugs by means of compresses
Cakar Kucing	Derivative Cough Medicine
Adam's Flower/*Bunga Adam*	Cough Medicine and Colds
Pondang	High blood pressure
Limbalo	Medication for defecation
Tebuh Merah	High blood pressure
Bunga Embuhanga	Ulcer Medicine
Sarungambong Merah	Antidote to All Diseases
Sayur Lembek	Drug swelling on the skin
Bunga Papung	Burn Medicine
Sayor Aer	Diabetes medicine
Kayu Burung	Skin Disease Drugs
Pohon Coklat	Drugs for injuries and swollen bodies
Sirih Merah	Stomach cleanser for people who have just given birth
Plank Cactus/Kaktus Papan	Dirty bloodsucker
Sweet Bulbs/Umbi Jalar	Medicine for soft head disease

Conservation of forest medicinal plants can be done in-situ and ex-situ. In-situ conservation is carried out by properly managing forest areas which are the original habitat of medicinal plants, while ex-situ conservation of medicinal plants is a protection activity carried out outside the natural habitat of a type of plant or animal. plant domestication so that in the end it can be widely cultivated (Noorhidayah, 2006).

In-situ conservation is the conservation of flora, fauna and ecosystems carried out in their natural habitat to maintain their natural integrity. This conservation is carried out in the form of natural reserve areas such as nature reserves, animal clan reserves. The goal of conservation is to maintain the integrity and authenticity of natural plant species by expanding the area with efforts to maintain essential ecological processes, as a life support, maintain plant genetic diversity and ensure the benefits of plants in a sustainable manner (Teaching, 2012).

Ex-situ conservation is the process of protecting (rare) plant and animal species by taking them from unsafe or threatened habitats and placing them or parts of them under human protection. Or ex-situ conservation is defined as the care and breeding of various types of animals to form and develop new habitats as a means of protecting and preserving nature which is used for the development of science and technology as well as for healthy natural recreation facilities (Alfalasifa & Dewi, 2019).

The wisdom of the Sangihe Tribe in utilizing medicinal plants consists of three categories, namely (a) how to take the ingredients, (b) how to mix them, and (c) when to consume the potions. In the method of taking the ingredients, the Sangihe Tribe Community uses local wisdom, namely by utilizing leaves, stems, roots, skin, and taking ingredients that have a certain size or quantity, for example the number of leaves must be odd, the leaves must grow upwards, the size of the material brewed or boiled as much as 1 handful or 1 bunch and

the color of the bark must be light or dark, and it is better to take the ingredients in the morning so they are still fresh (Nurrani et al., 2015).

The Sangihe Tribe community believes that medicinal plants that have been made into concoctions cannot simply cure diseases, the healing is influenced by the time of taking the concoction. According to the beliefs of the Sangihe people, the right potion is drunk in the morning and evening, but there are some diseases that only drink the potion in the morning or evening. Local wisdom is explicit from a long period that evolved and grew in the development and civilization of the Sangihe Tribe Community. The use of medicinal plants in the Sangihe Tribe is carried out by certain individuals (village shamans) who have used them for a long time. Identification of lineage is very important to know and explore the potential of medicinal plants used in this region.

Distribution Pattern of Plant Species in the Sangihe Islands.
Lipang Wood

In the Sangihe tribe, this plant is called Lipang Wood. This plant is used to counteract poison or can in animals. The distribution pattern of this plant species is grouped.

Figure 2. Lipang wood

Vile Glass

Keji shard has the characteristics of a herbaceous plant with wet stems, living in groups with a height of 1-2 m. Leaf shape is single and oval, has compound interest, taproot type is light brown.

Figure 3. Keji Beling

Aloe vera is a plant native to the southwestern Arabian peninsula. However, aloe vera is spread throughout the world, in tropical, dry areas of the Americas, Asia and Austria. Aloe vera spread in Indonesia in the 17th century by the Chinese. The plant especially thrives on the arid rocks on the hillsides, which are over 1000 m high, meaning temperatures ranging from 27-310°C and annual rainfall from 50-300 mm. This plant distribution pattern lives in groups.

Aloe vera

Figure 4. Aloe vera

Cucurbita moschata

Pumpkin plants are spread almost evenly throughout the archipelago, because the method and maintenance of pumpkin plants is very easy and can be

used as a food source. The distribution pattern of this pumpkin plant lives in vines.

Figure 5. Curcubita Moschata

Laka

Figure 6. Laka

The distribution area of this plant includes India, southern China, Laos, Southeast Asia, northern Australia and the islands in the Pacific Ocean. In Indonesia this plant can be found growing on the islands of Sumatra, Kalimantan, Java, Sulawesi, Bali and Flores. This type of plant is used as a medicine for wounds on nails (Riky, 2018).

Conclusion

There are 29 species of plants used as medicine by the Sangihe tribe. Based on the results of the research conducted, there are 29 types of diseases treated with medicinal plants. The use of medicinal plants by the Sangihe tribe is by boiling, drying or squeezing them by taking the extract from the water in the leaves. Medicinal plants used can also be eaten directly, smeared, mashed or mashed. The pattern of distribution of these plant species varies, growing in groups and also independently, scattered in several areas, even abroad.

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Author Contributions

This investigate may be a collaborative think about based on the most impediments confronted by Postgraduate understudies at the College Terbuka in compiling and completing their theses, counting troubles in making great and adjust composed dialect. Creator together planned the investigate, collected information, and analyzed the information gotten. Besides, this investigate can be completed legitimately.

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Conflicts of Interest

The authors declare no conflict of interest.

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