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**Submission date:** 25-Mar-2023 12:59AM (UTC-0500)

**Submission ID:** 2046081831

**File name:** C23\_ETHNOBOTANY OF MEDICINAL PLANTS\_Sinta 4.pdf (190.79K)

**Word count:** 4134

**Character count:** 22838

## ETHNOBOTANY OF MEDICINAL PLANTS AND TRADITIONAL RITUALS COMMUNITY OF SEMBALUN VILLAGE, EAST LOMBOK

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Accepted: October, 31 2021. Approved: November, 24 2021. Published: November, 25 2021

**Abstract:** The use of plant species by the community is an inseparable unit in everyday life. The use of plants used by the community in Sembalun Village for medicines and traditional rituals has been attached and is a hereditary tradition. Community knowledge about the use of plants for treatments and traditional rituals has not been well documented. This study aimed to determine the species of medicinal plants and traditional rituals and find out the parts of plants used by the community in Sembalun Village. This type of research is descriptive qualitative through direct observation, and interviews were conducted on 33 respondents using descriptive methods and *purposive sampling techniques*. The results showed that 58 species of medicinal plants from 30 families and 5 species of plants for traditional rituals from 5 families were used by the people of Sembalun Village. These medicinal plant species are believed to cure 28 types of diseases. They are used in the traditional rituals of Sembe, Ngeayu-ayu, Bebije Tawar, and Soyot (*Sapindus rarak*) in washing traditional Bale Lokak clothes. The most widely used plant parts were leaves of as many as 21 species, and the least used were seeds and flowers as many as 1 species plant.

**Keywords:** *Ethnobotany, medicinal plants, traditional rituals, Sembalun Village*

### INTRODUCTION

Ethnobotany is a science that studies the relationship between humans and plants. Ethnobotany describes and explains the link between culture and the use of plants, how plants are used, cared for, and judged to benefit humans, one of which is plants used for medicines and to support traditional rituals by the community. It is because Indonesia's biodiversity is very abundant. Indonesia's area is around 1.3% of the surface of Planet Earth, making Indonesia a "mega-biodiversity" country [1-2]. Indonesia is very rich in various types of plants. There are approximately 30 thousand species of the 40 thousand species of plants that exist in the world. Around 26% have been cultivated, and about 74% are still growing wild in the forest [3].

Indonesia is a multicultural country. Almost all regions in Indonesia have a variety of cultures that are different from one another. Lombok Island among its residents is better known and more popularly known as Gumi Sasak or Gumi Selaparang, precisely in the Sembalun Village area, Sembalun District, which has the potential for biodiversity in the form of plants. Communities in the area have a culture that still has the value of traditional wisdom and traditions. The tradition is passed down from generation to generation is still preserved in the use of plants by looking at the potential of plants in the area and the culture of the people around the area.

The Sembalun Village area, Sembalun District, has the potential for biodiversity in the form of plants. The community in the area has a culture that still has the value of traditional wisdom in using

plants by looking for potential plants and the culture of plants use.

Public knowledge about plants as an ethnobotanical study is not documented. It is feared that it will be eroded along with the loss of natural habitat and the extinction of medicinal plants, especially forest plants, due to excessive exploitation and land conversion. The younger generation's lack of interest in learning the knowledge of traditional medicine using plants can also make this traditional heritage slowly disappear. Ethnic groups in Lombok utilize various species of plants for traditional medicine by relying on their natural habitat. It is infrequent for forest plants with medicinal properties to be explicitly planted for cultivation. Apart from them yet accustomed to cultivating medicinal plants, there is a belief that they believe that cultivated medicinal plants do not have as good efficacy as those taken directly from nature [4-6]. Therefore, there is a need for ethnobotany studies for the community and the next generation in the use of plants to preserve customs in Sembalun Village, East Lombok Regency.

### RESEARCH METHODS

This research was conducted in July 2020 at Sembalun Village, Sembalun District, East Lombok Regency. This type of research belongs to descriptive qualitative research using methods in data collection through surveys, observations, and review of documentation (*documentation historical*) and examines the facts that occur by describing descriptions of traditional plants used by the people of Sembalun Village. Field observations will be carried out directly by viewing and recording,

interviewing, and documenting each object under study.

Data collection techniques in this study were interviews, observation, and documentation. Data from local community interviews was analyzed using a qualitative descriptive method that refers to interviews and various literature sources, with steps such as data reduction, data presentation, and concluding.

## RESULTS AND DISCUSSION

Based on the research results conducted in Sembalun Village, interviews were conducted on 33 respondents, consisting of 20 men (60.61%) and 13 women (39.39%). Largely respondents are natives of the island of Lombok. Some of the respondents are trusted, namely people who know about traditional medicine (shamans, traditional birth attendants), village officials, community leaders, the general public who use medicinal plants. Respondents were divided into four age groups: adolescents aged 12-25 years, adults 26-45 years, elderly 46-65 years, and seniors >65 years (Ministry of Health of the Republic of Indonesia 2009). Most of the respondents (63.64%) are 26-45 years of adult age class. According to the Ministry of Health of the Republic of Indonesia (2009), the age range of 26-45 years is a productive adult age class.

## Utilization of Plant Species for Medicinal Materials Plant

Species used as medicine by the people of Sembalun Village are obtained from cultivation or self-planted either in their yards, gardens or grow wild around secondary forests and residential areas. The medicinal plants identified were 58 species of medicinal plants from 30 families. Ingredients Traditional medicinals that are processed are used directly or used as herbs with many benefits such as launching birth, shortness of breath, toothache, and external and internal diseases. Herbal ingredients are processed with various types of plants such as turmeric (*Curcuma domestica*), galangal (*Languas galanga*), temulawak (*Curcuma xanthorrhiza*), trembesi (*barkSamanea saman*), and other plant species. The people believe a total of 58 species of medicinal plants from 30 families of Sembalun to be able to cure 28 types of diseases such as high blood pressure, tuberculosis, fever medicine, control birth, as stamina, stomachache, toothache, tightness, acne, eye pain, burns, internal disease, cancer, heart disease, body defense, an antidote to toxins and viruses, slimming facial treatments and skin diseases (Table 1).

Table 1. Species of Medicinal Plants Used by the Sembalun Village Community

No	Type of treatment	Plant Species	
		Local	name Scientific name
1.	Anti-virus and disease in	Moringa	<i>Moringa oleifera</i>
2.	kidney stones	Binahong Kejibeling	<i>Anredera cordifolia</i> <i>Strobilanthes crispus</i>
3.	Cough and tuberculosis	Mint lime	<i>Mentha piperita</i> <i>Citrusaurantifoli</i>
4.	high Blood	Coffee Arabica robusta Singgapur Bamboo	<i>Coffea arabica</i> <i>Coffea robusta</i> <i>Muntingia calabura</i> <i>Dendrocalamus asper</i>
5.	the smell of leather	Bluntas	<i>Pluchea indica</i>
6.	Chickenpox	Mango	<i>Mangifera sp</i>
7.	Diarrhea and dengue fever	Guava	<i>Psidium guajava</i>
8.	Drug skin	Asithaba / celery Japanese	<i>Angelica</i> <i>keiskeiKoidzumi</i>
9.	Acne	thornSpinach	<i>Amaranthus spinosus</i>
10.	Cancer	Imperata	<i>Imperata cylindrica</i>
11.	Lesuh / flatulence	Garlic	<i>Allium sativum</i>
12.	outsideLuka	Jernat Pumpkin / japan orchid Fir	<i>Lantana camara</i> <i>Sechium edule</i> <i>Dendrobium sp</i> <i>Casuarina</i> <i>junghuhniana</i>

13.	Launching the birth of	Gegasingan Temulawak Kelapa gading Lekok godek	<i>Sonneratia alba</i> <i>Curcuma xanthorrhiza</i> <i>Cocos nucifera</i> var. <i>Eburnea</i> <i>Piper betle</i>
14.	Drug external wounds	red onion	<i>Allium Cepa</i>
15.	fever	Beringin Ketujur Mamangge pomegranate purslane Bebele / grip	<i>Ficus benjamina</i> <i>Sesbania grandiflora</i> <i>Drymaria cordata</i> <i>Punica granatum</i> <i>PortulacaL</i> <i>Centella binomial</i>
16.	Disease in	fig Johar Papaya	<i>Ficus racemosa</i> <i>Cassia siamea</i> <i>Carica papaya</i>
17.	Slimming	Rambelang	<i>Portulaca oleracea</i>
18.	an antidote to the poison	Coconut	<i>Cocos nucifera</i>
19.	Reducerhot and sore eyes	Banten	<i>Lannea</i> <i>coromandelica</i>
20.	skin diseases	Andar lives Jackfruit	<i>Anaphalis longifolia</i> <i>Artocarpus</i> <i>heterophyllus</i>
21.	heart disease	Fennel	<i>Foeniculum vulgare</i>
22.	eye drug	Lemboke	<i>Ficus septica</i>
23.	Defensebody	Carrot	<i>Daucus carota</i>
		Litak	<i>Alstonia scholaris</i>
		Ginger	<i>Zingiber officinale</i>
		Turmeric	<i>Curcumadomestica</i>
		whiteTurmeric	<i>Curcumamanga</i>
		Laos / galangal	<i>Languas galanga</i>
		root of arc	<i>Eurycoma longifolia</i>
24.	Shortness of	Banggle	<i>Zingiber purpureum</i>
		Melaka	<i>Phyllanthus Emblica</i>
25.	Toothache	Bebalung adang	<i>Euphorbia</i>
		Rembige / widuri	<i>pulcherrima</i>
		Bandotan	<i>Calotropis gigantean</i>
26.	Stomach ache	Asem	<i>Ageratum conyzoides</i>
		Katuk/sager	<i>Tamarindus indica</i> <i>Sauropus</i> <i>androgynous</i>
27.	Wrong vein	Klembak	<i>Rheum officinale</i>
28.	All diseases	Mustajab/gadi	<i>Abelmoschus manihot</i> <i>Medicinal</i>

Plants are all species of medicinal plants known and believed to have medicinal properties. According to [7], medicinal plants can be grouped into traditional medicinal plants and modern medicinal plants, tested for their compounds and bioactive content. People in Sembalun Village still believe in medicinal plants, which are hereditary knowledge inherited from their ancestors and still used by the community.

Ashitaba (*Angelica keiskei koidzumi*) is one of the cultivated medicinal plants and is a plant originating from Japan. This plant is similar to the celery plant, so it is often called Japanese celery. In Indonesia, ashitaba plants can grow in East Lombok, located in Sembalun Village [8]. When cut, the

stems, leaves, and tubers of the Ashitaba plant will release yellow sap from a group of flavonoid compounds called chalcone. According to research results [9], chalcone has two flavonoid compounds: xantoangeol and 4-hydroxyricine. This compound has an active molecular structure and is a potent antioxidant that exceeds green tea and soybeans. The people of Sembalun Village use ashitaba sap as a medicine for various kinds of internal diseases and the leaves as a vegetable.

Betel (*Piper betle*) or the language of the Sembalun people, is called lekok, a plant native Indonesians that grows vines. This plant is often used as a medicinal plant and in traditional ceremonies. In a traditional ceremony, betel is

pounded with areca nut and lime. The community believes this betel is a tooth reinforcement, so it is not easily brittle. Serih is also used to treat various diseases such as launching menstruation and is often mixed in herbal concoctions and is believed to launch childbirth by pregnant women. Betel contains essential oils in the form of betle phenol, sesquiterpenes, starch, attaches, sugar, tannins, and estragole [10]. In addition, this relative of the pepper plant also contains eugenol, kavikol, cadinene, kavikol, caryophyllene, cineole, and *p-cymene*. Sutomo (2009) added that leko also functions as a deodorizer, bad breath, strengthening teeth, treating canker sores, and bleeding gums. Eugenol contained in the leaves serves to prevent premature ejaculation, kill the fungus that causes vaginal discharge (*Candida albicans*), analgesic, and anesthetic. The tannins contained in the leaves function as astringent, liver protector, antidiarrheal, and antimutagenic [11].

Binahong (*Anredera cordifolia*) is a plant that is believed to have many benefits, such as headaches and kidney stones. This plant often grows both in the highlands and lowlands. The leaves of this plant are often used as herbal medicine. Binahong plants contain several active compounds such as flavonoids, alkaloids, terpenoids, and saponins. Binahong's ability to cure various types of diseases is closely related to the active compounds contained in it, such as flavonoids. Flavonoids can act directly as antibiotics with the interfering function of microorganisms such as bacteria and viruses [12]. This plant is often found in plantations and fields.

Mint (*Mentha piperita*) is one of the aromatic herbal plants producing essential oils. A distinctive aroma and has many properties, such as cough medicine and tuberculosis. This mint plant is also often used in the manufacture of toothpaste. *Mentha*

*piperita* is a plant that produces peppermint oil. It contains menthol, menthone, methyl esters, and other active ingredients derived from monoterpenes: pulegone, piperitone menthofuran oil is Peppermint used in the bakery, chocolate and *confectionery industries*, tea processing, malt-containing foods and beverages, yarn spinning, pharmaceuticals, herbal medicine, soaps, and household cleaning agents including toothpaste, and cosmetics. Center for Statistics 2007 referred to in Personal (2010) [13]. This mint plant is easy to find in the yard community in Sembalun Village. Many use this plant because it is believed to have properties to treat coughs and tuberculosis.

#### Utilization of Plant Species for Traditional Rituals Traditional

Rituals are a hereditary tradition carried out by the people of Sembalun Village, such as ngeayu-ayu, sembe in the Bije Tawar ceremony use soyot plants in traditional rituals. The Sembalun Village community uses a total of 5 species of plants from 5 families for traditional rituals. Plant species are also used in several traditional ceremonies carried out by the people in Sembalun Village, such as betel leaf, areca nut, turmeric, and lime. The traditional rituals used by the community in Sembalun Village, namely at the Bale Loka traditional house, use soyot fruit as soap to wash the clothes of the stakeholders and residents who will traditionally enter the house. The clothes used when entering the traditional house should not be washed with soap chemicals. This tradition has been used for a, before knowing the existence of practical soap made from chemicals. However, this tradition is rarely carried out over time, only carried out by families of stakeholders who want to enter the house Bale Lokak traditional (Table 2).

Table 2. Plant Species for Indigenous Ritual Used by the Communities in Rural Sembalun

No	plant species,	scientific name	type customary ritual	Family	herbs used Organs	takenSource
1.	Betel	<i>Piper betle</i>	Sembe and ngayu-ayu	Piperaceae	Leaf	courtyard and plantations
2.	Pinang	<i>Areca catechu</i>	Sembeand ngayu- ayu	Arecaceae	Fruit	Plantation
3.	Turmeric	<i>Curcuma domestica</i>	ceremony Bije bargaining	Zingiberaceae	rhizome	Perkarangan
4.	lime	<i>Citrus aurantifolia</i>	ceremony Bije bargaining	Rutaceae	Fruit	Perkarangan
5.	Soyot	<i>Sapindus rarak</i>	tradition nyuci traditional clothes Bale Lokak	Sapindaceae	seeds	Forest

Sembe is one of the traditional rituals that people often carry out in the village Sembalun used to treat various diseases and is also used in traditional rituals when going up to Mount Rinjani. This sembe is made from betel leaf, areca nut, and lime which is ground or chewed, which is then placed on the forehead and head of the person being treated. Sembe is also often used to prevent children from being disturbed by spirits. The liquid produced from the mixture of these plants is reddish.

Ngayay-ayu is one of the traditional rituals of the people of Sembalun Village, an ancestral heritage that reflects gratitude and asks for safety. This traditional ritual is carried out every three years and has been passed down from generation to generation. In addition, the Ngayu Ayu ritual is a form of gratitude for the growth of red rice where this plant does not grow in place any. This ceremony also contains a symbol of a society that respects and loves nature. In this traditional ritual, the community also slaughters a black bull as a symbol of prosperity and then buries its head. According to ancient parents, the head of a buffalo buried in the ground was used as a stake [14].

The Ngayu-Ayu traditional ritual process lasts for two days. On the first day, water was collected from seven flowing springs that the people of Sembalun used. The water is left for one night in the houses of traditional leaders. The next day they were gathered together at the Traditional Cemetery, located to the west of the Sembalun Bumbung Field. The traditional ritual process is carried out in several stages, namely the diamond war symbolized as a war against the devil, which is carried out by throwing three times, namely the first throw by saying the fifth day, the second throwing by saying the 15th, and the third throwing by saying the 25th. The second stage is the arrow war poison, which the demon army did to take revenge when it lost in the diamond war. The demon army attacked the resident crops with poisoned arrows. In such a challenging atmosphere, there came a man named Raden Patra. The teacher gives instructions on dealing with attacks by using poison dart poison antidote in the form of water obtained from springs by Timba Bau. According to these instructions, the poison arrow war was finally ended by the people of the land of Sembalun, and gradually the plants in the rice fields returned to normal, and to commemorate this victory, a Bija Tawar ceremony was held.

The Bije Tawar ceremony or Bebija Tawar is a traditional procession system of the Sasak tribe, especially those in the Sembalun area, Sembalun District, East Lombok Regency, which begins with the Mait aiq ritual (taking water). The tradition of the Bebija Tawar ceremony is one of the ceremonies that are often carried out by the Sembalun community. This Bebija Tawar tradition is carried out when the rice season arrives because Bebija

Tawar aims to protect rice from pests or animals that want to disturb rice plants. This ceremony is carried out by surrounding the agricultural land with prayers, reading, and sprinkling. The solution used is made from a mixture of turmeric (*Curcuma domestica*) and lime (*Citrus aurantifolia*) which is then dissolved into Patara Guru water and water from 12 springs around Mount Rinjani. In addition, according to the mangku Patara Guru (the Stakeholder responsible for making 'Bije Tawar' and 'Sembe' solutions), this solution was also dipped in a stone which is said to be the first stone in Sembalun [14].

Soyot (*Sapindus rarak*) is a plant in the Sapindaceae family that the people of Sembalun Village use to replace soap. Before the existence of soap made from chemicals, the people of Sembalun used the seeds from the Soyot fruit to wash clothes and bathe. These seeds produced foam and were widely used by local people in ancient times. This fruit is still used by several traditional communities in Sembalun Village, one of which is the community or family of the Bale Lokak traditional householder. When entering a traditional house, stakeholders or the community should not use clothes carelessly, only use clothes that have never been washed with chemicals and only washed with soyot fruit. The stakeholder's family only carries out this tradition because of the times. Some traditional communities have used a lot of soap from chemicals.

#### **Parts of Plants Used by the Sembalun Village Community**

There are 12 parts of plants that are used by the Sembalun community for medicines and traditional rituals. The plant parts used are leaves, fruit, seeds, young leaves, stems, flowers, all parts, rhizomes, bark, tubers, roots, and sap. The most widely used plant parts are the leaves, as many as 21 species, and the least are the seeds and flowers of as much as 1 species. (Table 3).

The parts used consist of 12 groups of parts, namely fruit, leaves, young leaves, seeds, tubers, stems, flowers, whole parts, rhizomes, and bark, roots, and sap. The utilization of plant organs such as leaves is often used for medicine. According to, leaves are part of plant organs that are widely used as medicine because the leaves are generally soft and contain high water content (70%-80%) [15-16]. In addition, the leaves are a place of accumulation of photosynthate, which is thought to contain elements (organic substances) that have disease-curing properties. Substances that are abundant in the leaves are essential oils, phenols, potassium compounds, and chlorophyll. Other organs used are parts of the fruit that can be consumed directly or can be used as vegetables which are also believed to cure diseases.

Table 1.3 Parts of Plants Used for Medicines

No	Parts of plants used	Number of plant species used		Number of
		traditional medicine	Ritual	
1.	Leaves	20 species	1 species	21 species
2.	Fruit	6 species	2 species	8 species
3.	Seeds	0	1 species	1 species
4.	Young leaves	3 species	0	3 species
5.	Stem	2 species	0	2 species
6.	Flower	1 species	0	1 species
7.	Whole section	2 species	0	2 species
8.	Rhizome	5 species	1 species	6 species
9.	Bark	6 species	0	6 species
10.	Tubers	2 species	0	2 species
11.	Root	7 species	0	7 species
12.	Sap	4 species	0	4 species
	Total	58 species	5 species	

The plant parts are processed into medicines that can be eaten directly or processed by cooking and pounding. Plants are cooked in various ways, including grilled, boiled, fried, and mixed with other ingredients [17-19]. The use of plant species for medicine is mainly processed through the pounding.

#### CONCLUSION

There are 58 species of medicinal plants from 30 families identified and 5 species of plants for traditional rituals from 5 families. Among them, namely temulawak (*Curcuma xanthorrhiza*), turmeric (*Curcuma domestica*), white turmeric (*Curcuma mango*), jae (*Zingiber officinale*), sekur (*Kaempferia galanga*), bangle (*Zingiber purpureum*), Ashitaba (*Angelica keiskei koidzumi*), Sirih (*Piper betle*), mint (*Mentha piperita*), binahong (*Anredera cordifolia*), reeds (*Imperata cylindrica*), betel (*Piper betle*), areca nut (*Areca catechu*), lime (*Citrus aurantifolia*), turmeric (*Curcuma domestica*), soyot (*Sapindus rarak*). A total of 12 plant parts are used for medicines and traditional rituals. The most widely used plant parts are 21 species of leaves and 1 species of flowers and seeds.

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