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Ethnobotanical study of medicinal flora in the Lembak Delapan Tribe Community of Jum'at Village, Talang Empat District, Central Bengkulu Regency

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ABSTRACT

The potential for medicinal plants in Jum'at village is significant, despite the fact that many people today do not use traditional medicine due to the convenience of purchasing pharmaceuticals at stores, accessing remedies at home, or seeking treatment at health facilities or hospitals. The study aimed to identify and assess medical plant species and the socio-cultural conditions of the Lembak Delapan tribe's flora consumption in Jum'at village, Talang Empat District, Central Bengkulu Regency. This study used snowball sampling, interviews, and village tours to collect data and identify plants by comparing their characteristics to photos in plant identification literature. The findings revealed that 53 plant species used as traditional medicine were divided into 33 groups, with 10 species being the most commonly used by the community. These were the most often planted plants, others grew naturally near the hamlet. Plant medicinal components include the entire plant or specific portions (roots, stems, leaves, and fruit) and were viewed by the community as treatments for both internal and external ailments. They were processed by boiling, pounding, direct ingestion, brewing, squeezing, and incineration. We suggest that future studies collect the most recent data on the medicinal plant kinds found in Bengkulu Province and to carry out research on the chemical composition of the discovered medicinal plants.

Keywords: cocor bebek (*Kalanchoe pinnatum*), diversity, ethnobotany, medicinal plants, serai (*Cymbopogon citrtus*)

INTRODUCTION

Community awareness of plant species diversity and their ecosystems is essential foundational knowledge (Setiawan, 2017). This is accomplished to satisfy life's requirements by employing the natural resources present in the vicinity (Najmah et al., 2022). The extent of knowledge regarding plant species differs among various ethnic groups, contingent upon their respective ecosystems and shaped by local culture (Sebunga et al., 2015). Ethnobotany is the field of botany that examines the utilization of plants by communities in their everyday activities (Supriyati et al., 2017). The use of these plants is shaped by the customs or practices that have evolved in their surroundings (Indra et al., 2019).

Ethnobotany has a dual purpose: first, it can be used to document community knowledge, both traditional and general, of people who have relied on various plants to sustain their existence. Second, ethnobotany can help identify plant species with economic value, resulting in commercial benefits. Third, to safeguard local communities' intellectual property, such as knowledge of plant use by distinct ethnic groups or communities (Rahmadani et al., 2021).

Almost 25% of the Indonesian population continues to be denied access to modern medical care. This makes traditional medicine extremely beneficial (Destryana & Ismawati, 2019). Furthermore, traditional medicine has few adverse effects (Jumiarni & Komalasari, 2017). Traditional medicinal recipes contain several

components. This allows the therapeutic substances to have a synergistic impact, which means that some plants have several pharmacological effects (Herawati et al., 2014). Traditional medicine can be used to treat diseases at a low cost if medicinal plants are grown in fields or home gardens and processed on-site.

Prior research into the utilization of medicinal flora was undertaken by (Kasrina, 2015) in Kampai village, Talo sub-district, South Bengkulu district, revealing 39 species from 27 families. Furthermore, a study on the utilization of medicinal plants was undertaken by Indriati (2014) among the Anak Dalam tribe in Tabun village, Tebo district, Jambi, revealing 39 species across 33 families. The Lembak Delapan tribe community has historically cultivated traditional medicine, which continues to be utilized in proximity to their residences for the treatment of various ailments, it remains insufficiently researched.

The longstanding belief of the Lembak Delapan tribe in utilizing therapeutic plants cultivated in their vicinity, transmitted through generations, is a significant factor in the continued demand for traditional medicine. Furthermore, it is more accessible without the necessity of reprocessing the plants. This study is unique in that it details not only the different types of medicinal plants, but also the ecological, socio-cultural, and ritual relationships that go with them, presenting a comprehensive picture of human interaction with their environment.

This research was done to establish a foundation for the creation of herbal medicines, empower communities, and assist the conservation of local natural resources for sustainable use. Consequently, it is essential to investigate this at the research site by cataloging the medicinal plant species utilized by the Lembak Delapan tribe. This study intends to document the community's traditional knowledge of medicinal plant use, including plant parts, processing processes, and application methods. The objective of this research was to identify and assess medical plant species as well as the socio-cultural conditions of the Lembak Delapan tribe's flora consumption in Jum'at village, Talang Empat District, Central Bengkulu Regency.

MATERIALS AND METHODS

Research Location

The study was carried out from July to September 2018 in Jum'at village, Talang Empat sub-district, Central Bengkulu Regency (Figure 1).

Methods of Data Collection

Information regarding the varieties of medicinal plants utilized was acquired through interviews and field investigations. The informants selected as samples were chosen through snowball sampling, wherein they were deliberately recommended by local community members and prior informants to identify subsequent informants, taking into account their superior knowledge of medicinal. Key informants possess expertise on medicinal plants.

Medicinal plants were gathered through exploratory questionnaires with important informants in the village, documenting their native names, treatable ailments, growth habits, origins, utilized plant parts, and cultivation sites. Furthermore, interviews were performed concerning the socio-cultural dimensions of the informants and the Lembak Delapan tribal society in their use of medicinal plants. For medicinal plant species with unidentified scientific names, samples were collected, labeled, photographed, documented, and subsequently processed into herbarium specimens for identification in the Forestry Laboratory.

Data Analysis

The data collected in the field were tallied and analyzed descriptively using a qualitative methodology. After gathering all of the primary and secondary data, it was organized into tables/tabulations to make it easier to read and understand.

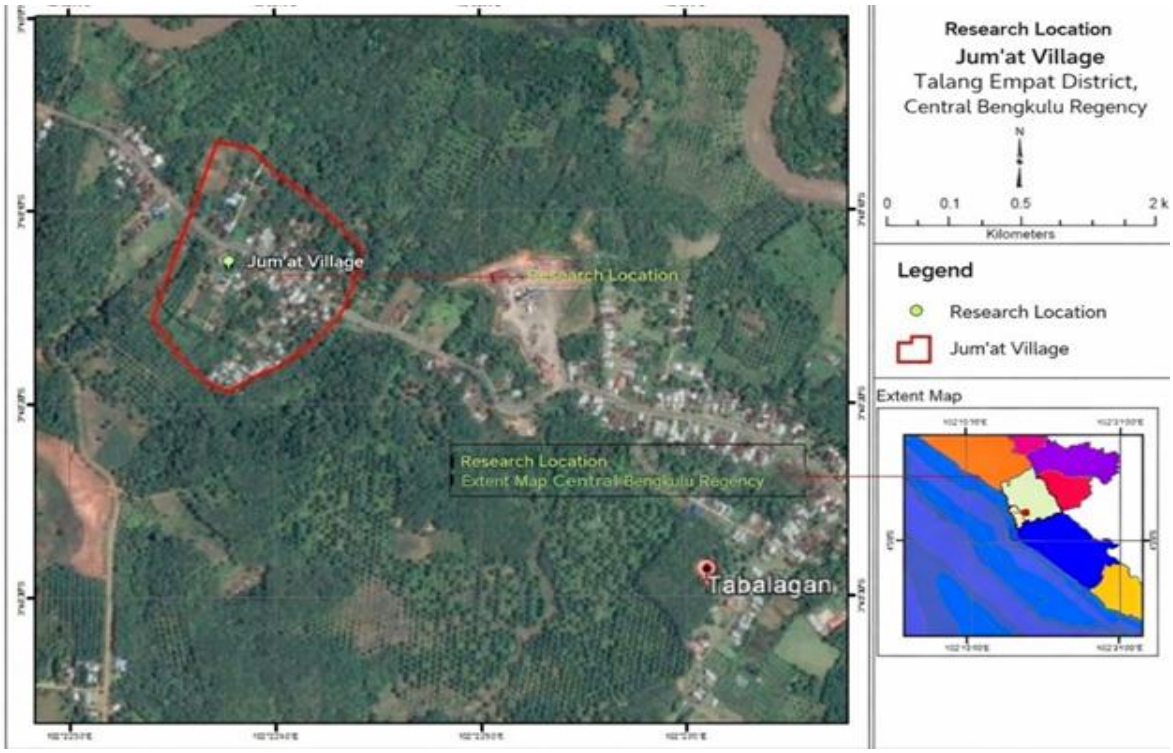

Figure 1. Location for data gathering in research

RESULTS

Diversity of Medicinal Flora in Jum'at Village

The research was carried out by interviewing key informants using the snowball sampling approach. This method was chosen because it relies on key informants who were knowledgeable about medicinal plants and could offer information regarding the socio-cultural aspects of the community's use of medicinal plants. Based on the findings of the study, six significant informants from the Lembak Eight tribe in Jum'at village were identified. According to the research findings from 53 types of medicinal plants used by the community, there were ten types of plants that were most widely used by the community and come from different families (Table 1) Malvaceae, Poaceae, Thymelaeceae, Zingiberaceae, Asteraceae, Lamiaceae, Acanthaceae, Solanaceae, Piperaceae, and Balsaminaceae.

Socio-Cultural aspects of the Lembak Delapan community

The Lembak tribal community was mostly a farming population, working in fields and gardens. Furthermore, many people in the private and public sectors work in various regions of Bengkulu Province. Traditional medicine had been created by the Lembak Delapan tribal people for many years and was still practiced today. This knowledge of therapeutic herbs was passed down through the centuries. The Lembak Delapan tribe treats numerous ailments with herbs found near their homes. These medicinal plants are frequently used in the community because they could treat common illnesses reported by the Lembak Delapan tribe.

The Lembak Delapan Tribe's Primary Medicinal Herb

Table 1. Varieties of medicinal flora commonly utilized by the community

Indonesia Local Name	Scientific Name	Plant Family	Habitus	Utility	Utilized Section	Instructions for utilization
Cocor Bebek	*Bryophyllum pinnatum* (Lam) Pers	Malvaceae	Herbaceous	Dysuria, tonsillitis, and rheumatism	Leaf	Boiled
Serai	*Cymbopogon citratus* (DC) Stapf	Poaceae	Herbaceous	Dental pain, menstrual irregularities, and gastric ulcers	The entire plat	Boiled
Mahkota Dewa	*Phaleria macrocarpa* (Scheff) Boerl	Thymelaeaceae	Shrub	Abdominal pain and pruritus	Fruit and leaves	Boiled
Kunyit Putih	*Curcuma longa* L	Zingiberaceae	Herbaceous	Typhus, tonsillitis, and dysmenorrhea	Rhizome	Shredded and filtered
Kitolod	*Isotoma longiflora* Pres L	Campanulaceae	Herbaceous	Hepatitis and abdominal distension	Leaves and Roots	Boiled
Kumis Kucing	*Orthosiphon aristatus* (Blume) Miq	Lamiace	Shrub	Renal infection and nephrolithiasis	The entire plant	Boiled
Sambiloto	*Andrographis paniculata* (Burm f) Wall	Acanthaceae	Herbaceous	Hepatitis, fever, and gonorrhea	Leaf	Boiled and filtered
Seletup	*Physalis minima* L	Solanaceae	Herbaceous	Challenging to conceive	The entire plant	Boil, cut, and apply to the stomach
Sirih Kuning	*Piper betle* L	Piperaceae	Liana	Leukorrhea, preventing bleeding from the nose and teeth	Leaf	Boiled
Pacar Air	*Impatient balsamina* L	Balsaminaceae	Herbaceous	Abdomen and a febrile infant	Leaf	Boiled

Figure 2. Varieties of Medicinal Flora Commonly Utilized by the Community

DISCUSSION

Cocor Bebek *Kalanchoe pinnatum* (Lam) Pers

Kalanchoe pinnatum (Lam) Pers (Figure 2), also known as cocor bebek among the Lembak Eight tribe, is a herbaceous plant. This species, which belongs to the Malvaceae family, is commonly grown in home gardens as a decorative plant and for therapeutic purposes (Megawati & Oktarlina, 2023).

The Lembak Delapan tribe utilizes kalanchoe plant leaves to treat three conditions: urinary discomfort, tonsillitis, and rheumatism. This contradicts the Lembak Delapan tribe's belief that kalanchoe leaves contain saponins, flavonoids, and tannins that can heal hemorrhoids, headaches, fever, and coughing (Hermanto et al., 2014).

Serai (*Cymbopogon citratus* (DC) Stapf)

Serai (Cymbopogon citratus (DC) Stapf) is commonly used to treat and prevent ailments (Rahma et al., 2022). This plant includes compounds with potential therapeutic benefits (Amarullah et al., 2023). Serai stalks have 76.78% moisture, 0.79% ash, and 0.25% essential oil concentration. In addition, Serai includes several vitamins, including vitamin A

(0.1 mg), vitamin B (0.8 mg), and vitamin C (4 mg). The stalks and leaves contain essential oil (Khasanah et al., 2015).

The oil's components can be utilized to treat infectious disorders, fever, and digestive issues (Ibrahim et al., 2021). Lemongrass also includes antimicrobials that can treat infections in the stomach, intestines, urinary tract, and skin. Unlike the Lembak Delapan tribe, who utilize lemongrass to heal toothaches, menstrual irregularities, and stomach ulcers.

Mahkota Dewa (*Phaleria macrocarpa* (Scheff) Boerl)

The Lembak Delapan tribe utilizes the leaves and fruit of the crown of thorns (Phaleria macrocarpa (Scheff) Boerl) for the treatment of stomach ailments and pruritus. The procedure for preparing the plant to alleviate stomach ache involves boiling the fruit peel and consuming the resultant infusion. Skin pruritus is alleviated by boiling the leaves of the crown of thorns, thereafter mashing them, and applying the mixture to the affected area. The foliage and fruit epidermis of the crown of thorns encompass flavonoids, alkaloids, saponins, and polyphenolic substances that may serve as treatments for tumors, dysentery, and dermatological ailments. The crown of thorns fruit possesses a hypoglycemic impact, indicating its capacity to reduce blood sugar levels, and is advantageous for conditions affecting the liver, kidneys, and heart. The chemical analysis of the crown of thorns fruit reveals the presence of fatty acids, steroids, benzophenone glycosides, and carbohydrates (Fiana & Oktaria, 2016).

Kunyit Putih (*Curcuma longa* L)

Curcuma longa L is commonly referred to as white turmeric. The Lembak Delapan tribe employs white turmeric as a treatment for typhoid, tonsillitis, and dysmenorrhea. This kind is frequently encountered in residential gardens and agricultural fields. The rhizome is utilized by consumption; particularly, white turmeric rhizomes are processed through shredding, brewing with water, and subsequently filtering the liquid (Hartati & Balittro, 2013). Their research indicated that white turmeric comprises alkaloids, phenols, saponins, glycosides, steroids, terpenoids, and other chemicals with potential antibacterial, antifungal, anticancer, antiallergic, antioxidant, and analgesic properties.

White turmeric from China and Japan is also used to treat bloating, coughs, menstrual issues, dyspepsia, body temperature regulation, fever, and vomiting. The community cultivates Curcuma longa L by spreading its rhizomes (Saefudin et al., 2015).

Daun Kitolod (*Isotoma longiflora* Pres L)

Isotoma longiflora Pres L, usually referred to as kitolod or kitolod leaf, is a species within the Campanulaceae family (Permana et al., 2022). This herbaceous plant is extensively cultivated by the community for medicinal purposes to address hepatitis and bloating. The utilized portions of the plant are the leaves and roots; kitolod is frequently cultivated in residential yards (Fazil et al., 2017). Phytochemical investigations indicate that kitolod leaves comprise flavonoids, tannins, saponins, polyphenols, and alkaloids (Ramayani, 2022). Kitolod possesses antibacterial properties, capable of eliminating or suppressing microbial development. The kitolod flower is utilized in the treatment of glaucoma, cataracts, viral infections, toothaches, bronchitis, syphilis, and asthma (Sianipar & Simorangkir, 2022).

Kumis Kucing (*Orthosiphon aristatus* (Blume) Miq)

Kumis kucing belongs to the Lamiaceae family and has the scientific name (*Orthosiphon aristatus* (Blume) Miq). The Lembak Delapan tribe claims that drinking a decoction of the Kuming Kucing plant's leaves, stems, or roots can treat kidney infections and kidney stones. Kumis kucing leaves contain a variety of chemical substances, including flavonoids, potassium salts, orthosiphonin glycoside, and essential oils. Potassium salts have a diuretic effect, which promotes urine flow and dissolves urinary stones, hence reducing kidney stone deposits (Pribadi et al., 2014).

Sambiloto *Andrographis paniculata* (Burm f) Wall

The Lembak Delapan tribal community recognizes *Andrographis paniculata* (Burm f) Wall as sambiloto, a species of the Acanthaceae

family. Sambiloto is a herbaceous plant that proliferates in residential gardens. The community employs the leaf components of Sambiloto paniculata to address three ailments: hepatitis, fever, and gonorrhea. Sambiloto leaves serve as an appetite enhancer. *Andrographis paniculata* (Burm. f.) Nees, often known as Sambiloto, comprises diterpenes, lactones, and flavonoids. Flavonoid chemicals are predominantly located in the root, while they are also present in the leaves. The therapeutic constituents of sambiloto comprise lactone, diterpenoid, diterpene glycoside, flavonoid, and flavonoid glycoside (Priyani, 2020).

Seletup (*Physalis minima* L)

Seletup (*Physalis minima* L) is well known in the community as a wild plant with medicinal properties. This plant thrives profusely in the village's home gardens People think that the ingredients of the seletup plant can offer fertility to couples who have yet to have children. According to informants, they learned about these benefits through generations of boiling, cutting, and applying the entire plant to the abdomen (uterus). The active components found in the firecracker plant, including as saponins, flavonoids, polyphenols, and physalin, can be used to treat anticoagulants, leukemia, mutagens, inflammation, spasms, pain, infections, and asthma, as well as diuretics and immunostimulants. In addition to treating internal ailments, the leaf section of the seletup can treat external wounds (Najmah et al., 2022).

Sirih Kuning (*Piper betle* L)

Piper betle L belongs to the Piperaceae family and has numerous medicinal properties. The Lembak Delapan tribal community uses *Piper betle* leaf to treat leucorrhea, as well as bleeding gums and noses. The three sorts of disorders are addressed differently. For example, *Piper betle* leaf leucorrhea is treated by boiling the leaves, cooling the water, and then pouring it over the female organs. To cure bleeding gums, boil the yellow betel leaves and gargle with the water. For nosebleeds, roll the leaves up and shove them into the nose. *Piper betle* L is used as a "styptic" or blood stopper since it contains phenol, an antiseptic (Rezeki et al., 2017). *Piper betle* leaf decoction contains antibacterial capabilities, which means it can eliminate the germs that produce vaginal discharge (Supriyati et al., 2017)).

Pacar Air (*Impatient balsamina* L)

Pacar air (*Impatient balsamina* L) belongs to the Balsaminaceae family and is used in the community to treat stomach ulcers and fever. The cooked leaves of water balsam are used medicinally. This plant is widely seen in home gardens and is farmed. *Impatient balsamina* L leaves contain flavonoids that can treat a variety of disorders, including stomach ulcers and fever. The flower includes anthocyanins, cyanidin, and malvidin, which are anti-hypertensive and rheumatoid arthritis treatments. Pacar air seeds include saponin, parinaric acid, quercetin, and balsaminatol, which can help with childbirth and treat digestive tract cancer (Hartanti & Farida, 2021).

CONCLUSSION

The Lembak Delapan tribe in Jum'at village, Talang Empat sub-district, Central Bengkulu Regency, employed 53 medicinal plant species from 33 families, with 10 being the most commonly used by the community. Generally, these plants are farmed, although they also grow wild in the community. Plant organs used in medicine can be the complete plant or a specific organ (root, stem, leaf, or fruit). It can be boiled, mashed, eaten immediately, or brewed.

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