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Research Article

Ethnomedicinal Knowledge of Coastal Lampung Ethnic Group: A Study of Medicinal Plants Used in Pesisir Selatan, Indonesia

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Abstract. Indonesia is renowned for its high biodiversity and rich cultural heritage, particularly in traditional medicine practices among indigenous communities. The Coastal Lampung ethnic group in Pesisir Selatan, West Pesisir Regency, preserves a wealth of ethnomedicinal knowledge that has been underdocumented. This study aims to analyze the diversity, usage, and cultural significance of medicinal plants used by this community to support conservation efforts and provide a foundation for pharmacological research. Employing qualitative and quantitative ethnobotanical methods, including semi-structured interviews and field observations with 35 purposively selected informants, data were analyzed using the Index of Cultural Significance (ICS) and Species Use Value (SUV). A total of 79 medicinal plant species from 44 families were identified, used to treat ailments such as wounds, fever, cough, stomach disorders, and postpartum care, with leaves being the most commonly utilized plant part. *Curcuma longa L*., *Zingiber officinale Rosc*., and *Citrus limon (L.)* Osbeck had the highest cultural significance and use values, highlighting their importance in local healthcare. These findings underscore the critical need to conserve both ethnomedicinal knowledge and biodiversity, as well as to pursue pharmacological validation of key species, supporting the integration of traditional knowledge into sustainable health and biodiversity management strategies in Indonesia.

1. INTRODUCTION

Indonesia is one of the countries with the highest levels of biodiversity and cultural diversity in the world (Adiyasa & Meiyanti, 2021). One region that exemplifies this richness is West Coast Regency, Lampung Province. Established in 2012, this regency covers a vast area with diverse ecosystems, including South Coast District, which is geographically close to Bukit Barisan

National Park. This geographical condition makes Pesisir Selatan rich in plant diversity, particularly medicinal plants that have been traditionally utilized by the local community, especially the Lampung Saibatin ethnic group (Adiyasa & Meiyanti, 2021). The Lampung Saibatin ethnic group, also known as Lampung Pesisir, is one of the main ethnic groups inhabiting this area. This tribe is known for upholding ancestral traditions, one of which is the practice of traditional medicine based on the use of medicinal plants (Pratiwi et al., 2018).

Ethnomedicine practices in the Lampung Pesisir community are unique, not only because of the variety of medicinal plants used, but also because of the combination of empirical knowledge, cultural values, and spiritual elements. Traditional medicine in this region involves shamans or healers who perform special rituals, such as reciting prayers and mantras, as part of the healing process (Cahyaningsih et al., 2022). Various plant species, ranging from chili peppers for diabetes mellitus, waru bark for edema, to cat's whisker roots and butter apple leaves for kidney failure (Aldi Suhendra & Naimatussyifah Daulay, 2022), are utilized through traditional processing techniques such as boiling or applying them to the affected areas of the body. This diversity of plants and utilization techniques is greatly influenced by the long-standing interaction between communities and their environment, as well as religious teachings and philosophical beliefs that view plants as a gift from God to humanity (Arsyad Subu, 2015).

The use of medicinal plants as part of traditional medicine systems has been widely recognized, not only in Indonesia but also globally. WHO data shows that the use of herbal medicines continues to increase, with 60% of people in developed countries and 80% of people in developing countries using them in their daily lives. This indicates that interest in herbal medicines is on the rise, with many developed and developing countries still relying on them for daily healthcare (Wahyuddin & Sidi, 2023). In Indonesia itself, data from the Basic Health Research (RIKESDA) 2018 shows that nearly half of the population still practices traditional herbal medicine. This underscores the significant use of herbal medicine among the population (Adiyasa & Meiyanti, 2021; Pratiwi et al., 2018). This phenomenon highlights the importance of preserving and documenting traditional knowledge (Wahyuddin & Sidi, 2023), particularly in regions that still strongly adhere to ethnomedical practices, such as in the Pesisir Selatan District.

However, to date, there has been no research specifically examining the ethnomedical knowledge and use of medicinal plants by the Lampung Pesisir tribe in the Pesisir Selatan subdistrict. The

lack of systematic data on the types of plants used and the processing methods in traditional medicine practices in this region represents a significant research gap. Studies of local knowledge are crucial for the preservation of cultural wisdom and the potential development of local bio-pharmaceutical resources (Widiya et al., 2021). This knowledge can also serve as a foundation for the development of policies for the sustainable preservation and utilization of medicinal plants.

Therefore, this study aims to comprehensively examine the ethnomedical knowledge of the Lampung Pesisir community in Pesisir Selatan Subdistrict, Pesisir Barat Regency. The study will identify the types of medicinal plants and their uses. The research results are expected to make a significant contribution to the development of ethnobotany, pharmacy, and health anthropology, as well as serve as an important reference in efforts to conserve biodiversity and preserve Indonesia's cultural heritage.

2. METHODS

2.1. Study area

This study was conducted in January 2022 in Pesisir Selatan Subdistrict, Pesisir Barat Regency, Lampung Province, Indonesia (5°52456 LS and 104°23341 BT). The study area was chosen because of its rich diversity of medicinal plants and the presence of the Lampung Pesisir tribe, who still actively practice traditional medicine.

Figure 1. Sample Collection Location

This study uses a qualitative approach with an exploratory-descriptive method. The qualitative data collected includes the identification of plant species and how plants are used as medicine. Quantitative data in the form of calculations of the Index of Cultural Significance (ICS) and Species Use Value (SUV) were used to determine the importance and utility value of each species in the local community's culture (Mustofa & Rahmawati, 2019; Oktoba, 2018; Silalahi et al., 2022).

Research informants consisted of key and non-key informants selected through purposive and snowball sampling techniques. Key informants were five traditional healers/medicine men spread across four villages (Way Jambu, Biha, Paku Negara, and Bangun Negara), selected based on their experience, in-depth

knowledge, and intensity of traditional medicine practice recognized by the community. Non-key informants number 20 individuals, selected based on referrals from key informants, and meeting criteria as individuals with knowledge and experience in using medicinal plants, either through recommendations or as a result of the key informants' practices (Dahniar et al., 2023; Lelo & S, 2020).

The research procedure began with field observations to gain an understanding of social conditions, the availability of informants, and the practices of medicinal plant use. Next, semi-structured interviews were conducted using a questionnaire modified from similar studies to explore in-depth data on informants' knowledge, experiences, and perceptions regarding the use of medicinal plants. The interviews were conducted face-to-face and documented in written notes and audio recordings. Visual documentation was carried out by taking photographs of medicinal plant specimens in their natural habitats, as evidence of the plants' existence and for further identification. This method is in line with recommended practices in ethnobotany, where face-to-face interviews and visual documentation are important for capturing accurate data (Mitak et al., 2023; Mustofa & Rahmawati, 2019).

Plant specimens were collected carefully, either partially (for large plants) or in their entirety (for small plants), and detailed records were made of the local name, collector, collection number, time, and location of collection. The collected specimens were then identified using medicinal plant taxonomy literature, particularly references from Gembong Tjotrosoepomo, and compared with other relevant literature sources. An inventory of all specimens was carried out by recording the local name, scientific name, family, habitat, parts used, processing methods, benefits, and ICS and SUV scores.

2.2. Data Analysis

Data analysis was conducted descriptively and qualitatively based on findings from interviews, observations, and documentation, as well as quantitatively through SUV and ICS calculations. SUV was calculated to determine the use value of a species based on the number of uses mentioned by respondents for each species (Ibo & Arifa, 2021; Pranaka et al., 2020), while ICS was used to describe the cultural significance of a species based on the quality of utilization, intensity of use, and its exclusivity in the local culture. The formulas and assessment criteria for ICS and SUV refer to standardized methods in ethnobotanical studies (Hafizah & Fitmawati, 2023). Use Value (UV) can be calculated using the following formula (Sembiring et al., 2022):

$$\text{Use Value} = \sum \frac{u}{n}$$

Description:

UV : Use Value
U : Number of uses of the plant per species
N : Total number of respondents

The Index of Cultural Significance (ICS) determines the importance of a plant species in culture and is calculated using the following formula:

$$\text{ICS} = \sum_{i=1}^{n} (q \; x \; i \; x \; e)$$

Description:

q = *quality value*
i = intensity value
e = nilai ekslisivitas (*exelusive value*)

Validity was ensured using source triangulation techniques, namely by comparing interview results between informants, as well as cross-checking field data and literature (Kasiyan, 2015). This triangulation approach ensures that the information collected has a high level of accuracy and consistency, making the research results reliable as scientific references. This enhances the weight of the data obtained, thereby making the research results more reliable and considered valid in a scientific context (Suyitno, 2021).

3. RESULT AND DISCUSSION

This study produced data showing that the coastal ethnic community of Lampung in South Coast utilizes various types of medicinal plants obtained from the surrounding environment as part of local wisdom in addressing various health issues. This is reflected in the diverse types of medicinal plants utilized, as well as their cultural significance and practical applications.

The Index of Cultural Significance (ICS) shows that turmeric has the highest value (60), followed by lime, betel leaf (54), and guava (45) (Figure 2). The high ICS of these species indicates their important role in community life, whether for traditional medicine, culinary purposes, or cultural rituals. Conversely, species such as mindi and black sugarcane have the lowest ICS (6), indicating their more limited utilization. This suggests that communities remain highly dependent on traditional medicine derived from various local plants, which is a key factor in maintaining health (Kurniawan et al., 2025). Species with the lowest ICS reflect their more limited utilization in this context (Purwanta et al., 2024).

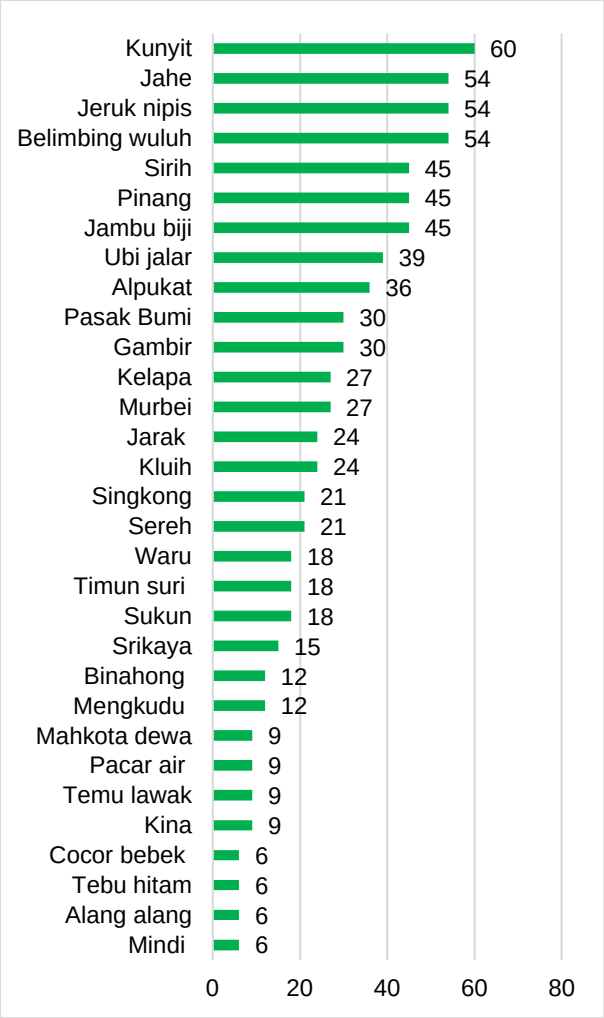

Figure 2. Index of Cultural Significance

The Species Use Value (SUV) shows that betel leaf (0.12) and turmeric (0.08) are the species most frequently used by informants, while most other species have an SUV of 0.04, indicating that they are rarely used or only used in specific contexts (Figure 3). The difference between ICS and SUV shows that even though a species has high cultural significance, it does not guarantee its widespread use in everyday life (Sumayyah & Salsabila, 2017). This indicates that the utilization of species in everyday practices is greatly influenced by cultural factors and the community's knowledge about the plant (Rahayu et al., 2023).

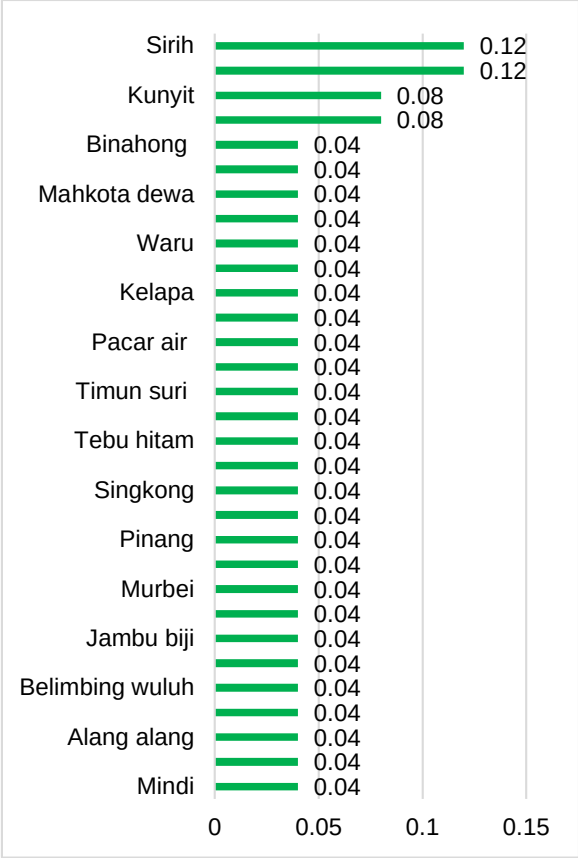

Figure 3. Spesies Use value

The distribution of species families shows the dominance of Zingiberaceae and Rubiaceae (13% each), which include many medicinal plants and spices. The Euphorbiaceae and Meliaceae families follow with 9%, while other families such as Piperaceae, Myrtaceae, and Lauraceae contribute only 4% of the total species, indicating a wide but uneven taxonomic diversity (Figure 4).

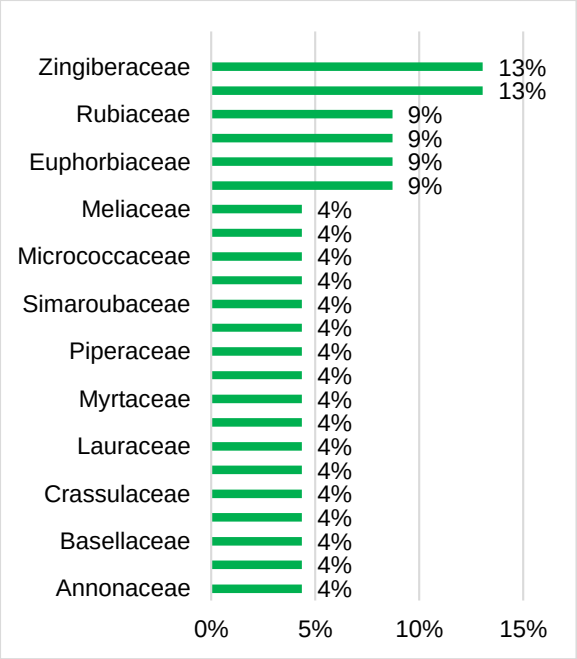

Figure 4. Percentage of families

Based on (Figure 5) the parts of the plant used, leaves are the most dominant part (55%) because they are easy to obtain, easy to process, and rich in secondary metabolites. Fruits (16%) and roots (10%) also play an important role, while stems, seeds, bark, tubers, and rhizomes are each used in small percentages (3–6%). This reflects the tendency of communities to choose materials that are easily obtained and rich in secondary metabolites (Amalia et al., 2024). The use of leaves is more environmentally friendly than roots or rhizomes because it does not disturb the structure of the plant (Khairiah et al., 2022).

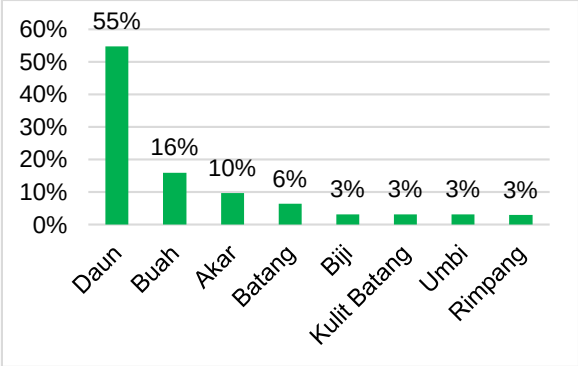

Figure 5. Plant Parts Used (%)

In terms of usage methods (Figure 6), boiling is the most dominant method (71%), reflecting the tradition of herbal processing to extract active compounds while reducing potential toxicity. Grinding (16%) and grating (6%) are used for fresh preparations or topical applications, while squeezing (3%) and direct consumption (3%) are rarely performed, typically on plants with high water or sap content. In the context of usage methods, boiling is dominant, reflecting the tradition of herbal processing to extract active compounds while reducing potential toxicity (Srangenge et al., 2024).

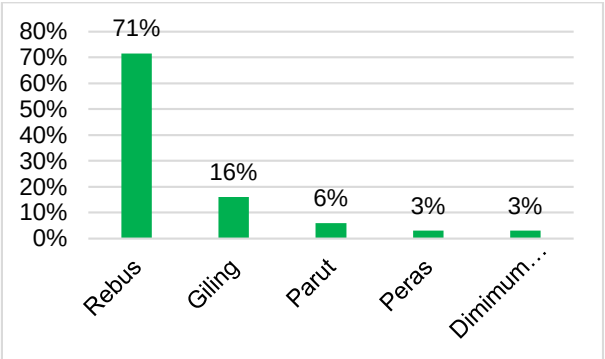

Figure 6. How Plants Are Used

Based on Table 4, in general, the recorded species have a variety of families and organs used, ranging from leaves, rhizomes, fruits, seeds, to roots. Leaves appear to be the most dominant part utilized, indicating a preference among communities for materials that are easily obtainable, abundant year-round, and relatively environmentally friendly since their harvesting does not damage the plants (Jadid et al., 2020; Silalahi et al., 2014).

The processing methods listed show a dominance of simple traditional techniques such as boiling, grinding, grating, and squeezing, reflecting the strong connection between local knowledge and daily health practices. The use of traditional methods supports the sustainability of medicinal plant use (Sujarwo & Caneva, 2016). The variation in families indicates the richness of local biodiversity as a source of natural medicine, with Zingiberaceae and Rubiaceae standing out among other groups. These are often identified as the primary sources of traditional medicine (Khairiah et al., 2022; Yakub et al., 2019).

Overall, Table 4 illustrates the high dependence of communities on local plant resources for traditional medicine, as well as the combination of botanical knowledge, resource availability, and cultural heritage in maintaining health. This data serves as an important foundation for efforts to conserve biodiversity and develop phytopharmaceuticals based on local wisdom.

Table 1. Uses of Plants, Plant Parts, and Methods of Use

Diseases Treated	Type of Plant	Part of Plant	Method of Use
Diarrhea	Avocado	Fruit	Juiced
	Betel leaf	Leaves	Boiled
	Guava		
	Turmeric		
	Water lily		
Internal heat/Sore throat	Alang alang	Root	Boiled
	Tumeric	Leaves	
	Castor oil		
	Cocor bebek		
	Lime	Fruit	Squeezed and drunk
Diabetes	Pasak Bumi	Leaves	Boiled
	Quinine		
	Belimbing wuluh		
	Sukun	Root	
Thrush	Gambir	Leaves	Boiled
	Temu lawak		
	Jarak		
	Betel leaf		
	Coconut	Water	Drink
Edema	Cucumber	Fruit	Milled and then attached to the abdomen
	Srikaya	Leaves	

	Waru	Bark	
Herpes	Gambir	Latex	Apply
	Areca nut	Seed	Grind
Fever	Quinine	Leaves	Boiled
	Castor oil		
	Pasak bumi	Root	
Boils	Sweet potato	Leaves	Grind and apply to the boil
Heart	Black sugarcane	Stem	Grate and strain, then drink the strained liquid
	Cassava	Tuber	
Hypertension/high blood pressure	Binahong	Leaves	Boiled
	Mindi		
	Betel leaf		
	Mulberry		
	Noni		
	Kluwih	Fruit	
	Mahkota dewa	Fruit	Slice thinly, dry, then boil
Gastristis	Lemongrass	Stem	Boiled
Muscle pain	Ginger	Rhizome	Boiled

The Index of Cultural Significance (ICS) values place Curcuma longa (turmeric) as the most prominent species, followed by *Citrus aurantiifolia* (lime), *Piper betle* (betel), and *Psidium guajava* (guava). This pattern is consistent with regional literature emphasizing the strong cultural ties and multifunctionality of turmeric and betel in traditional medicine, cuisine, and ritual practices in Southeast Asia (Zenderland et al., 2019). Curcuma longa has been shown to have numerous health benefits, including antimicrobial and anti-inflammatory properties (Murtadlo et al., 2023; Nora et al., 2022). Multi-location studies indicate that turmeric has a wide range of uses, including as an anti-inflammatory, antiseptic, and treatment for gastrointestinal disorders, while betel plays a significant role in traditional and social health, such as antimicrobial treatment, oral health care, and traditional rituals (Jadid et al., 2020; Tefu et al., 2023).

The Species Use Value (SUV) score shows P. betle and C. longa as the species with the most consistent frequency of use by informants. Methodologically, SUV/UV reflects the frequency of mention and diversity of uses by informants, and is commonly used to identify key species in traditional health systems (Zenderland et al., 2019). SUV captures the actual intensity of use; the comparison between ICS and SUV is not an anomaly but indicates the presence of other influencing variables, such as availability and perceived effectiveness of the plant. This underscores the fact that while a species may have high cultural value, it does not necessarily mean it has the highest utility value in daily practice (Sujarwo & Caneva, 2016).

Taxonomic distribution shows the dominance of the Zingiberaceae and Rubiaceae families, consistent with ethnobotanical studies in various regions of Indonesia that place Zingiberaceae as the primary source of home remedies (ginger, turmeric, and galangal) and cooking spices (Khairiah et al., 2022). This dominance is influenced by the ease of cultivation, the high bioactivity of the rhizomes, and their long history of use in cuisine and medicine.

From a taxonomic perspective, the distribution of families in the table is consistent with the Family (%) graph, with Zingiberaceae and Rubiaceae dominating (13% each). The Zingiberaceae family, which includes C. longa, Zingiber officinale, and Alpinia galanga, is widely known in Indonesia as a source of medicine and household spices. The prominence of this family is supported by its ease of cultivation, high bioactivity in rhizomes, and long history in Southeast Asian culinary-medical traditions.

Among the plant parts used, leaves accounted for the largest proportion (55%), followed by fruits (16%) and roots (10%). This preference aligns with cross-location findings indicating that leaves are the most frequently utilized part due to their year-round availability, ease of harvesting without damaging the plant, and beneficial secondary metabolite content for common indications such as fever, wounds, and digestive disorders. Ecologically, the utilization of leaves is more sustainable than the exploitation of roots or rhizomes, which can potentially damage the plant. The dominance of leaf utilization is also supported by studies showing the high content of beneficial secondary metabolites in this part (Khairiah et al., 2022).

In terms of usage, the decoction method dominates far above other techniques such as grinding, grating, or squeezing. Decoction has been widely reported across various Indonesian communities as an effective method for extracting polar compounds, inactivating contaminants, and standardizing empirical doses through control of water volume and heating duration. This also explains why leafy and rhizome species, particularly from the Zingiberaceae family, often occupy an important position in household medicinal practices.

Integrating these five findings, the ICS, SUV, and organ method taxonomy matrix confirms that culturally significant species (C. longa, P. betle) also have high utility value when: (i) they belong to dominant families in local ethnopharmacopoeia (Zingiberaceae, Piperaceae, Rubiaceae), (ii) the utilized parts are renewable (leaves or rhizomes), enabling repeated use, and (iii) they are compatible with boiling techniques that are standard in households. The integration of these biocultural factors aligns with modern pharmacological evidence, such as curcumin in C. longa and phenolic compounds or allyl-

catechol in P. betle, which support the sustainability of use from generation to generation.

In practical terms, species with high ICS and high SUV are priority candidates for: (1) backyard cultivation and in situ conservation programs, (2) the development of phytopharmaceuticals based on local recipes, particularly in the form of decoctions or infusions, and (3) public education on dosage safety and standardization of the boiling process (Sujarwo & Caneva, 2016; Tefu et al., 2023).

4. CONCLUSION

A total of 79 medicinal plant species from 44 families were identified, used to treat ailments such as wounds, fever, cough, stomach disorders, and postpartum care, with leaves being the most commonly utilized plant part. *Curcuma longa* L., *Zingiber officinale* Rosc., and *Citrus limon* (L.) Osbeck had the highest cultural significance and use values, highlighting their importance in local healthcare. These findings underscore the critical need to conserve both ethnomedicinal knowledge and biodiversity, as well as to pursue pharmacological validation of key species, supporting the integration of traditional knowledge into sustainable health and biodiversity management strategies in Indonesia

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