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Research Article

Battras: Holders of Traditional Medicinal Plants Knowledge in East Lampung, Indonesia

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ABSTRACT

Local knowledge continues to experience two fundamental problems that cause its existence to be marginalized and cannot be widely passed on. Externally, local knowledge has always been questioned for its relevance to the times. Internally, it has become elitist, making it difficult for other groups to access it. Gradually, local knowledge is alienated in people's lives. To date, ethnobotany studies have focused on identifying plants and their properties for policy and business purposes. This study was carried out in four old villages near the Way Kambas National Park, East Lampung, which were selected using the purposive sampling method. The key respondents were selected using the snowball sampling method, while data were collected from respondents through semi-structured interviews. Selected medicinal plants were observed, and the data were analyzed qualitatively and descriptively. Interviews with parties interested in medicinal plant knowledge show the monopolistic mastery of knowledge by all parties and their interests. The study shows a great need for synergy between parties for the preservation of medicinal plant knowledge, starting with the opening of access to knowledge for all. The openness of the *battra*s (traditional healers) to share sources of knowledge, the dedication of researchers/scientists in transforming knowledge into the public domain, the willingness of the private sector to share the value of medicinal plants benefits, and a pro-people policy framework will be key to the sustainability of medicinal plant knowledge for the development of fair and dignified public health.

Keywords: Battra, Ethnomedicine, Ethnobotany, Indigenous knowledge, Local knowledge

Introduction

Currently, the study of medicinal plants merely illustrates two aspects. First, the inventory of medicinal plants through various constructed knowledge [1, 2]. Second, the identification of medicinal plants' efficacy and effectiveness as part of traditional medicine with regard to dual health systems (traditional and modern) [3]. Within the framework of pharmacological studies, these two studies tend to set the medicinal plants as the object in determining substances to develop effective treatment methods [4]. Meanwhile, the inheritance of local knowledge, which is an essential dimension in ensuring the existence and sustainability of medicine knowledge in a health system, has not been intensively studied despite serving as an abundant source in developing the pharmaceutical industry. Thus, the threat of medicinal plants' extinction due to the absence of traditional medicinal knowledge inheritance is an important issue to study.

Medicinal plant knowledge is a local wisdom obtained through experience that is typically

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passed down from generation to generation [5, 6]. In line with the definition of local knowledge, medicinal plant utilization was initiated based on the local knowledge system (indigenous knowledge) regarding plants in a traditional community. The system was handed down from generation to generation and has produced unique local wisdom of the community [7, 8]. Local knowledge of the medicinal properties of plants is generally based on natural cues or animal behavior [9]. The existing knowledge system is subsequently developed and maintained by indigenous peoples and local communities and is believed to represent an adaptive strategy for the community's environment [10, 11].

Traditional medicine is often viewed by the mainstream medical profession with skepticism and has never been widely applied in the modern-day Western world. Traditional forms of medicine consist of acupuncture, moxibustion, diet therapy, herbal recipes, medicinal herbs or supplements, yoga, meditation, qigong, homeopathy, Islamic medicine, and tai chi [12, 13]. A common example of traditional medicine is *jamu*, which uses roots, rhizomes, tubers, bark, stems, leaves, flowers, fruit, and seeds as its ingredients. *Jamu* is processed through burning, chewing, frying, mashing, drying, steaming, boiling, and soaking. It can be taken orally, either at will or by force-feeding, or applied on skin or body parts through different methods [14]. However, ethnomedicine practices using plants as medicine have now disappeared from rural populations where new generations have disregarded traditional knowledge of identification, preservation collection, and processing of plant species for medicinal use [15]. Knowledge of traditional medicine is increasingly limited as medicinal plants are often difficult to obtain because the shrubs and forests have slowly been disappearing due to the expansion of territories and settlements [9].

Medicinal plant knowledge that exists across Indonesia is only known by a handful of people. As a case in point, medicinal plant knowledge in East Lampung is only mastered by *battra*s (traditional healers), who live in villages. However, their numbers are dwindling. Medicinal plant knowledge has become a family monopoly, with access to this knowledge being limited to certain people. Knowledge inheritance has also become an issue as the descendants of *battra*s are reluctant to learn the knowledge as they consider it irrelevant [16], bringing the potential loss of local medicinal plant knowledge.

This paper aims to complement the shortcomings of previous studies by examining how medicinal plants exist in the context of the modernization of modern health systems and practices and their relationship to inheritance patterns that do not support the exchange and inheritance of knowledge. Accordingly, three questions were formulated: (1) What is the involvement of actors and the mastery of actors in local medicinal plant knowledge? (2) How do the interests of actors affect the expansion of medicinal plant knowledge in the community? and (3) How do agency characters affect the inheritance pattern of medicinal plant knowledge? The answers to these three questions lead to an understanding of the importance of preserving medicinal plant knowledge for community-based health administration. This paper is based on the argument that the mastery of knowledge is a source of power that needs to be maintained. Knowledge inheritance does not take place due to the control of power exercised by certain actors as a result of power control. Medicinal plant knowledge is not distributed in the community because it means a distribution of power. The control of power through the acquisition of local knowledge carries the risk of the extinction of local knowledge and results in the absence of local knowledge for future generations.

Material and Methods

This research originated from an attempt to create an inventory of local people's understanding of medicinal plants in East Lampung Regency, Lampung Province. The study was conducted using an ethnobotany approach to obtain information regarding the traditional knowledge of medicinal plants of the Lampung tribe near the Way Kambas National Park, East Lampung Regency. This tropical forest area is located in East Lampung Regency, with an area of approximately 125,631 hectares. The research location was determined by purposive sampling method. There are 4 old villages of the Lampung tribe, namely Sukadana, Labuhan Maringgai, Braja Slebah, and Labuhan Ratu (see Figure 1), which are considered to be areas that still adhere to Lampung's traditional customs and many people choose to go to battras for treatment of health problems. Traditional medical

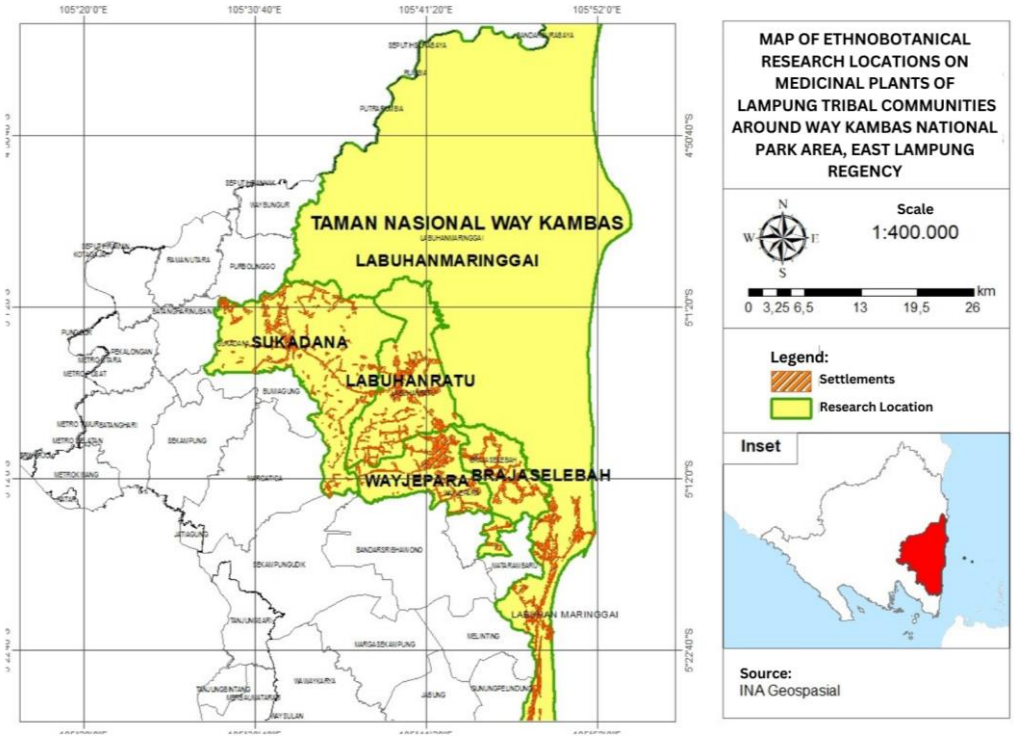

Figure 1. Research location of investigation on *battras*: Elitism of medicinal plant knowledge among 4 villages (Sukadana, Labuhan Maringgai, Braja Slebah, and Labuhan Ratu) in Lampung Province, Indonesia.

treatment uses a variety of plants as ingredients for herbal drinks (jamu), consumed as fresh vegetables, or applied to body parts [17].

Data were collected through semi-structured interviews and observations. Interviews were conducted with two types of respondents, namely key respondents and general respondents. Since information regarding *battras'* medical practices was not openly available and only conveyed orally, key respondents (informants) were determined using the snowball method. Informants were determined based on information from a group of *battras* who had been interviewed. There was only a senior *battra* who claimed to be a *battra*, while other informants did not prefer to call themselves *battra* even though, in practice, they were often requested to help in curing illnesses. Interviews were conducted with nine key respondents, including *battras*, researchers, policymakers (government), and herbal medicine company representatives. We interviewed four people from Sukadana, three people from Labuhan Ratu, and one person from Labuhan Maringgai and Braja Slebah, respectively.

We used an open interview method with key respondents and general respondents. This type of interview enabled us to examine medicinal plant knowledge and its inheritance system. Informants were interviewed regarding their knowledge of plant species, their use of medication, and how to process them. Researchers also made several observations of the treatment practices done by *battras*, especially when they were concocting drugs. On another occasion, researchers and *battra*s made direct observations and documentation on *battras'* medicinal plant collection in their gardens. Informants' explanations and personal views regarding medicinal plants, medical practices, and sustainability were analyzed descriptively to identify various shortcomings and advantages of each actor in the process of mastery and transfer of medicinal plant knowledge.

Results and Discussion

Mastery of medicinal plant knowledge

Several importante actors have an interest in medicinal plant knowledge. First, the local leaders apply traditional healing methods by using nearby plants. These people are known as *battras*. In the past, they were the mainstay of local residents when it came to overcoming health problems. In practice, these *battra*s often use a combination of medicinal plants and mantras or prayers. Although

their roles have been replaced by the modern medical system, *battra*s are still believed by some residents to be an essential part of solving health problems. People who still go to *battras* for medical treatments are those who are religiously adhering to traditional customs, underprivileged groups, and people with ailments that are incurable by modern medicine. A similar group of patients is also reported by Haque et al. [18], who stated that the majority of rural Bangladesh residents, especially people of low socioeconomic status, first approach traditional healers for treatment of their medical problems. Most of the *battra*s in East Lampung are female and live in old villages such as Sukadana, Labuhan Maringgai, Braja Slebah, and Labuhan Ratu, which are rich in traditional nuances. Different observations were identified in the local Tanzanian community, in which most traditional healers are men [19]. *Battras* from the traditional Lampung community received the knowledge of medicinal plants from their parents.

Second, the government's perspective on the local biological diversity is part of regional identity and economic potential. The diversity of medicinal plants in the Way Kambas National Park is a distinctive feature of East Lampung Regency's identity, in addition to the well-known fauna such as elephants, rhinos, and Sumatran tigers. However, the identity of flora, especially medicinal plants, has not been widely researched and utilized. Therefore, the local government, together with the Way Kambas National Park, created a program to identify and optimize biological resources as regional potential, collaborating with the academics from the University of Lampung, the Sumatra Institute of Technology, Raden Intan State Islamic University, Metro State Islamic Institute, and Research and Development Agency of Lampung in various research activities. The local government also plans to use the abundance of medicinal plants in the utilization zone of Way Kambas National Park to provide benefits for the regional economy and the people's welfare around the area. A report from Yudiyanto et al. [17] states that academics and researchers are facilitated to study traditional medicine traditions that utilize local medicinal plants as new medicines and alternative medicines, as well as for science and education.

Third, the private sector perspective is the economic potential of the medicinal plants diversity, which is in line with the 'back to nature' lifestyle trend. This trend provides a lucrative opportunity for local medicinal plant-based pharmaceutical businesses. The private sector is interested in identifying medicinal plants for their products and economic goals. The more medicinal plants that are discovered, the greater the opportunity to generate profits by developing herbal medicines as marketed products. Some people are starting to use herbal medicines, which are considered to have no side effects compared to chemical drugs. In addition to *jamu gendong*, which sellers typically go around selling by carrying the drinks on their backs, there are relatively few local herbal medicine production trademarks in packaging, such as Amanah, Vista, Utomo, Herbal 77, Herbal Kite, Agri, Surya Bintang, and Karya Tama Herbal. At the national level, there is a network of herbal medicine users, such as Herba Penawar Alwahida Indonesia (HPAI), who are users of herbal medicinal herbs and have a strong belief in the efficacy of various herbal medicines to maintain health and treat diseases.

Interests of actors

Each actor has different interests in the acquisition and inheritance of traditional medicinal plant knowledge. In the Lampung community, *battra*s have the most strategic position in mastering and passing on such knowledge. They control the knowledge sources, and the knowledge is passed down from generation to generation as a family asset.

"… I got this (skill) from my parents. My parents got it from our grandfather. So, yes it is inherited…. " (Battra 1)

"… Not many people understand and pursue this [tradition]. This is a family inheritance, so whether we want it or not, we must preserve it. But children nowadays don't want to do it anymore. " (Battra 2)

By mastering this knowledge, a particular person or family has more authority to provide health services than others. In other words, medicinal plant knowledge has become elitist (the domain of certain groups) and does not belong to

the populace. Other research findings also state that most traditional knowledge was transferred from parents secretly and orally to more favored individuals, such as reported in the Basque region, Spain [20], Lebanon [21], North Shewa zone, Ethiopia [22], and West Halmahera, Indonesia [8]. This fact prompts the process of inheriting knowledge in the study area to be problematic because it is in direct contact with the social status of *battras'* families.

Meanwhile, the local government deems that medicinal plant knowledge is an important cultural asset for sustaining regional identity and, at the same time, serving as a source of locally generated revenue. For this reason, the government formulates and implements policies for the preservation of native Lampung plants. A similar view is also demonstrated by the Canadian government by maintaining government relations and indigenous aboriginal people who possess the local knowledge. Canada has a program that accommodates the involvement of Aboriginal people in identifying Indigenous medicinal plants and alternative health care as priority research areas [23]. On the other hand, under the pretext of conserving indigenous and high-value medicinal plants, the Nepal government outlawed the collection and trade of some important medicinal plants and urged citizens to cultivate highly valued species. However, the policy was inadequate [24].

In Lampung, pepper plants are an example of medicinal plants and spices whose cultivation has been supported. The concrete preservation effort of medicinal plants carried out by the government is a program called Family Medicinal Plants (*tanaman obat keluarga*/TOGA). The program was launched by the Ministry of Health and is regulated according to Minister of Health Regulation No.6 of 2016. However, this program did not have a significant effect on the inheritance of medicinal plant knowledge. The government also provides incentives to encourage expanded research on medicinal plants in collaboration with research institutions, academics, and the private sector. The results are, unfortunately only intended for the scientific community and not for the wider community. The use has therefore been limited to scientists or interested private parties.

"… A lot of research related to these medicinal plants have been conducted by universities, Research Institute for Medicines and Spices, Research and Development Center for Medicinal Plants and Traditional Medicines, but until now, the studies have not been made available to the local community. "(Local Researcher).

In this case, the private sector, herbal medicine entrepreneurs, and pharmaceutical companies are the parties interested in exploring medicinal plants. By mastering medicinal plant knowledge, entrepreneurs can develop various types of new medicines, with the eventual aim of gaining economic benefits. Therefore, entrepreneurs are keen to collaborate with academics to invest in local medicinal plants. The rise of a healthy lifestyle trend has affected marketing opportunities for herbal medicines as a profitable business. In other words, medicinal plant knowledge is an economic asset, and therefore, its mastery is a valuable asset for the sustainability of drug production. In line with research by Adhikari et al. [25] and Wakhidah et al. [26], the information collected from the local community is also an important resource for the exploration of many bioactive contents of plants that have the potential for advanced studies as a medicine. By understanding people's preferences, they are able to manufacture new medicines with herbal labels in modern packaging to attract consumers. For example, PT Sido Muncul, a herbal medicine manufacturer in Indonesia has been operating for more than 70 years. The company has modernized herbal medicine to meet the contemporary lifestyle of Indonesian consumers by continuing to use native Indonesian spices and medicinal plants that have been proven for their efficacy from generation to generation [27].

Agency

The previous section's description shows that each actor has different interests related to the inheritance of traditional medicinal plant knowledge. The most strategic position is occupied by *battra*s who inherited the knowledge from their ancestors. The knowledge is generally transferred orally from their parents or grandparents. This inheritance system of local knowledge is also found in other areas such as the communities of Mount Hermon, Lebanon [21], Abyan region, Yemen [28], Tarfaya, Morocco [29] and Rukungiri District, Western Uganda [30]. Knowledge mastery is a cultural asset for families

in those communities, which makes them families with high social status. A similar assumption is also demonstrated by communities in North Shewa zone, Ethiopia [22] and the rural region in Bangladesh [18]. Traditional healers in those regions believe that traditional healing should be valued more and passed down secretly.

"In the past, people went to my father for treatment. Now, it's occasional, maybe because they go to a doctor or local health clinics ... There is no fee for medical treatment; usually they give some money or bring any gift as a token of appreciation ..." (Batrra 3)

"In addition to treating sick people, my father was also often consulted by local officials because he was considered to have supernatural abilities..." (Batrra 4)

"People who are sick are not only caused by disease, injury, or food poisoning, but it could also be due to spirits, which doctors can't treat. They come here asking for help to get rid of the disruption of spirits. So, the herbs are not only effective for physical recovery but also for expelling the evil spirits." (Batrra 5)

For *battra*s, medicinal herbs alone are not enough to cure diseases. The treatment they perform is a combination of herbal elements and supernatural strength, including prayers. In this case, the basis of knowledge inheritance is culture, and the efficacy of medicinal plants is not always related to disease as they are also interpreted culturally. The same findings are also reported by Haque et al. [18], who stated that traditional healers in Bangladesh do not only use medicinal plants in treating their patients. They use various methods and even prioritize belief in supernatural things as a guarantee of successful treatment.

For the government, the preservation of medicinal plant knowledge is an institutional issue, and therefore, its preservation is no longer a matter of efficacies of medicinal plants but also policy issues.

"... preservation of medicinal plants is [part of] the government's duty in protecting biodiversity. So, in this case, there must be clear and firm policies and programs to preserve medicinal plants, for example, through the awareness campaign of family medicinal plants (TOGA). If every family has their own medicinal garden, our community will be healthy ... " (Goverment 1)

One of the government's efforts to preserve medicinal knowledge is through the family medicinal plant (TOGA) program. This program encourages residents to cultivate medicinal plants in their yard. Through this program, the community is involved in cultivating, collecting, and utilizing various species of medicinal plants. The program is intended to serve as an efforts to protect public health and treat minor ailments. The promotion of TOGA in East Lampung has been carried out for a long time by incentivizing the Family Welfare Empowerment (*Pemberdayaan Kesejahteraan Keluarga*/PKK) groups who are in charge of this activity. The local government also periodically holds TOGA competitions to stimulate this effort.

Another agency influencing the inheritance process of medicinal plant knowledge is the market. For pharmaceutical entrepreneurs, the collection of medicinal plant knowledge is an essential capital in the development and continuity of their business. Therefore, the private sector is independently active in conducting research and utilizing medicinal plants in the pharmaceutical industry, which includes companies producing modern medicines and herbs. Extensive research and development are conducted by private agencies to discover medicinal properties, and the results are used to produce medicines, including herbal medicines, which have been widely developed recently.

'… The demand for herbal products such as those we produce continues to increase; new markets continue to be formed after knowing the efficacy of the herbal medicines [that] we produce…' (Herbal product entrepreneur)

The high demand for herbal medicinal products further motivates the private sector to continue the research on traditional medicinal plants, with the ultimate aim similar to modern drug and herbal medicine manufacturers, namely profits. The above explanation shows that each actor has different interests in mastering medicinal plant knowledge. First, *battra*s, who inherited medicinal plant knowledge, are trying to maintain their position for social and economic interests. Second, the government uses medicinal plant knowledge for identity and economic concerns, and therefore, mastery of medicinal plant

knowledge tends to indicate political interest. Third, academics and researchers use medicinal plant knowledge as an interesting research object for the advancement of science. Fourth, the private sector, which controls medicinal plant knowledge, aims to obtain as many medicinal ingredients as possible to be manufactured and marketed to obtain more profit.

This finding confirms that the mastery of traditional medicinal plant knowledge in society has shifted from general knowledge to a limited domain to a certain group of actors. This is possibly due to the influence of certain interests of each actor on medicinal plant knowledge. The main reason *battras* keep the medicinal plant knowledge for themselves and their descendants is to maintain their social influence and their income. The ownership of traditional knowledge in treating a disease in an undeveloped society can indeed elevate the social status degree of traditional healers [8] and provide a source of income. Traditional healers in Bangladesh typically earn <BDT10,000 of monthly income as full-time healers [18], which is higher if compared to the minimum wage in Bangladesh of BDT 8,000/month [31]. Meanwhile, the government wants to place medicinal plant knowledge as the identity and potential income of the regional economy. Academics and researchers use the knowledge as an object for research, book writing, and teaching materials. The private sector utilizes medicinal plant knowledge as a business commodity that increases economic profit [23, 32]. If this trend continues, there will be an extinction of traditional medicinal plant knowledge and its usefulness to society.

If examined further, each actor has a fundamental problem in the inheritance of medicinal plant knowledge. At the moment, there are few people who are seriously willing to study healing with medicinal plants. Even *battras'* descendants are reluctant to continue the business as they consider becoming *battras* is not socially and economically prospective. Meanwhile, the family medicinal plant (TOGA) program promoted by the government is often not drawn up with a clear and measurable roadmap. As a result, this vital program becomes stagnant. Researchers with sufficient knowledge of the potential of traditional medicinal plants often find it challenging to produce their studies' results. Meanwhile, private parties who are oriented toward financial gain tend to keep the knowledge to themselves as it relates to business assets. The mastery of medicinal plant knowledge tends to be kept as limited as possible, such as a family legacy business assets, resulting in vulnerable patterns that threaten the knowledge's existence.

Traditional medicinal plant knowledge belongs to the public. Therefore, it must be returned to the public both in terms of its usefulness and sustainability. Mastery of the knowledge that tends to be elitist will put the knowledge into the static and closed realm, posing a great risk to its inheritance [8, 33]. When the *battra* generation no longer wants to pass on medicinal plant knowledge, that knowledge will gradually disappear. The case in East Lampung shows the need for synergy among actors in the inheritance of medicinal plant knowledge and the need for a process of inheriting knowledge that does not cause elitism. Each actor must acknowledge and support the strengths and weaknesses of other actors in mastering medicinal plant knowledge. In this case, the government plays the most strategic role as it has authority in terms of regulations. States are required to implement these policy measures to ensure that traditional knowledge and intellectual property rights are respected through laws and regulations [23].

*Battra*s are the most important source of knowledge but are continually and systematically marginalized by the modern medical system. Therefore, researchers and academics can take the role of inheritors and collect the knowledge into documents and use them as teaching materials in schools. Thus, the knowledge becomes public property, and the burden of inheritance becomes a shared responsibility. As a policymaker, the government can encourage related parties to restore the wealth of traditional medicinal plant knowledge in the local community. Through the educational curriculum, local content on traditional medicinal plants can be included in the school curriculum. Meanwhile, the value of medicinal plant benefits is a domain that must be managed by the private sector to play an active role in the development of a healthy and dignified society.

Conclusion

A study on the documentation of medicinal plant knowledge in East Lampung shows that the

knowledge is no longer owned by the local community but is the domain of certain groups. Each group has its interests and motives, which hinder the spread of medicinal plant knowledge to local communities. To address this issue, the government, as the policyholder, should return the mastery of traditional medicinal plant knowledge to local communities through educational policies involving all relevant actors. The synergy between these actors is stronger when framed in political policies oriented toward knowledge inheritance.

In addition, the mastery of traditional medicinal plant knowledge in the local community is stagnant due to the pressure of the modern health system. Modern health systems that are commercially and pragmatically oriented, manufacturing chemical-based drugs, and supported by the institutional infrastructure of hospitals as well as health centers facilitated by the government, are gradually eroding the inheritance of knowledge and traditional medical practices. On the other hand, there is a tendency for the private sector to control traditional medicinal plant knowledge for commercial purposes. Both lead to a process of limiting the inheritance and dissemination of traditional medicinal plant knowledge to local communities.

This ethnobotany study is limited to the mastery level of medicinal plant knowledge at the agency, namely *battras*, government, academia, and the private sector. Therefore, further studies are needed to examine the mastery of traditional medicinal plant knowledge from the perspective of the general public. This is important because the community is directly related to the inventory and regeneration of local knowledge (herbs). In other words, the community is an essential party in the process of knowledge inheritance.

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