Traditional Medicinal Plants Knowledge of Tengger Ethnic (Descriptive Study in Pasuruan, Probolinggo, and Lumajang Distric)

Eko Teguh Pribadi[1], Dwi Rukma Santi[2]
[1]*Faculty of Science and Technology*, UIN Sunan Ampel Surabaya, Indonesia
[2]*Faculty of Psychology and Health*, UIN Sunan Ampel Surabaya, Indonesia
ekoteguh1980@gmail.com

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Abstract Tengger ethnic is a Javanese sub-tribe that is rich in mystical culture including in a local tradition of treatment, which live on the slopes of Mount Semeru and Bromo. This is a descriptive study to explore the knowledge of the Tengger ethnic community related to the use of local plants as treatment and traditional health care. The study was conducted in 2015 on the Tengger ethnic group that inhabited in 5 villages located at Probolinggo, Pasuruan, and Lumajang district. The result shows that the Tengger ethnic has knowledge related to the use of medicinal plants, but this knowledge is threatened to disappear because Tenggerese people no longer practice it in their daily lives. Medicinal plants are mostly use for labor and baby care, wound treatment, and other disorders related to fatigue and activities. Plant sections commonly uses as medicinal ingredients are leaves, followed by other sections such as tubers and rhizomes. The existence of medicinal plants is relatively easy to find around the yard, but some types of plants can only be found in forests or mountains. Further studies in exploring, inventorying, and documenting Tengger ethnic local wisdom regarding the knowledge of traditional medicinal plants must continue.

1 INTRODUCTION

Indonesia is one of the countries with the greatest natural potential in the world. As one of *mega biodiversity* countries, Indonesia has the second largest tropical forest in the world with various biodiversity that has a high level of endemism and ecological uniqueness. In the biodiversity wealth is stored the potential of medicinal plants that can be extracted and utilized. Since ancient times various ethnic groups in Indonesia have known traditional medicine technique both from animals (Partasasmita et al, 2016), or from plants that grow in the forest or around the house to treat various types of external and internal diseases (Pical, 2013).

The use of local plants as medicinal ingredients has been carried out for centuries by many tribes in Indonesia as part of a tradition passed down from generation to generation. Evidenced by the existence of the old manuscripts on *Lontar Husodo*, *Serat Primbon Jampi*, *Racikan Boreh Wulang Dalem* (Java), *Usada* (Bali), *Lontarak Pabbura* (South Sulawesi), and some relief at Borobudur Temple which describe people mixing herbs with plants as raw material (Sukandar, 2014).

Along with the times, the population is getting bigger, the density level is getting higher, and the ecosystem has changes, contributing to changes in the social system of society. It also influences changes in the local wisdom of knowledge and culture of the community in the utilization of plants as natural medicines, futhermore there is even a tendency to losing this local wisdom (Kinho et al, 2011).

Indonesia itself is a nation with large of ethnicity. According to the 2010 population census there were around 1,340 sub-tribe groups and more than 300 ethnic groups spread throughout Indonesia (BPS, 2010). Each ethnicity has cultural characteristics with all forms of local wisdom in it, including knowledge about the use of local plants for treatment. With the ethnic diversity that exists, the knowledge of the use of plants as medicine is certainly also increasingly diverse. However, to date the number and type of plants for treatment in Indonesia are not known certainly. So that a comprehensive study is needed to explore the types of traditional medicinal plants in all ethnic groups in Indonesia (Hidayat and Hardiansyah, 2012).

The main ethnic groups in the eastern Java (East Java Province) are ethnic Javanese, Madurese, Osing,

Samin, and Tengger. One ethnic in East Java that believed still maintains the culture of traditional medicine by using local plants as part of ancestral heritage is Tenggerese people. The Tengger ethnic group itself is one of the Javanese sub-tribes in East Java, and is still one family with other Javanese tribes. The largest population of Tengger ethnic is spread in 4 districts, namely Probolinggo, Pasuruan, Lumajang, and Malang. Most of these tribes live on the slopes of Mount Semeru and Bromo.

2 METHOD

This research is a descriptive study that aims to explore the variety of Tenggerese people knowledge related to the use of local plants as treatment and traditional health care. The study was conducted in 2015 on the Tengger ethnic group that inhabited on the slopes of Mount Semeru and Bromo in 5 villages, namely the villages of Wonotoro and Ngadisari (Probolinggo), the village of Wonokitri (Pasuruan), and the villages of Argosari and Ranupane (Lumajang).

3 RESULT AND DISCUSSION

The Tengger ethnic community on the slopes of Mount Semeru and Bromo has a unique mystical tradition, in which they classify the villages where they live based on the existence of mythical *danyang* as the village ruler. Each of *danyang* has a role as a guardian or ruler of each village. This ethnicity strongly believes that living humans must have a balanced relationship with the nature, both in real things and supernatural (spirit). This ethnic group still tries to maintain its relationship with the spirits of the ancestors. The ritual ceremony that is well known to maintain relations with ancestral spirits is the *Kasad*a ceremony or what is Tenggerese people known as *Yadnya Kasada*.

The Tengger ethnic group in Probolinggo district inhabits 6 villages, which are the villages of Ngadirejo, Ngadas, Jetak, Wanakerta, Wanatara, and Ngadisari. All of those villages are located in Sukapura sub-district. The Tengger ethnic group in Pasuruan inhabits 3 villages, which are the villages of Tosari, Wonokitri, and Ngadiwono. The three villages are located in Tosari. And then the Tengger ethnic group in Lumajang district inhabits 3 villages in Senduro sub-district, namely Gedog, Argosari and Ranupane villages.

The Tengger ethnic population mostly works as farmers. The farming system is a system of fields, mixed gardens and yards planted with horticultural crops such as corn, potatoes, leeks and others. The Tengger ethnic group is relatively open to accepting the outer peoples due to tourism access to Mount Bromo.

In general, nowadays the Tengger ethnic community which is mostly Hindus are rarely or does not do traditional medicine activities using medicinal plants anymore. Although they actually have knowledge about medicinal plants, traditional forms of treatment that are often carried out by the community are more oriented to the use of mystical powers, namely *japa* or spells. The person as a community elder who is believed to be the liaison of this mystical power is a traditional figure or shaman (*dukun*).

The existence of the shaman is still very much maintained to lead the traditional ceremonies and rituals of the Tenggerese people. In addition, shamans are also believed to be cultural links between different ethnic groups. Even among these shamans there are also shaman's elder (*tetua dukun*) who has functions as leaders of all shamans in the villages of Tengger ethnic at Mount Semeru and Bromo. The shaman's elder are currently residents of Ngadisari village, Sukapura Probolinggo district.

Figure 1: Exploration Location Map

The picture above is a map of the location of the research exploration, with 5 locations points based on the presence of informants (*village shaman*) scattered in 3 regions. Two informants from Wonotoro and Ngadisari villages at Probolinggo district, one informant from Wonokitri at Pasuruan district, and two other informants from Argosari and Ranupane villages at Lumajang district.

Table 1: Distribution of The Number of Medicinal Plants Known by Village Shaman

No	Village	Number of Plants
1	Wonotoro	55
2	Ngadisari	15
3	Wonokitri	26
4	Argosari	23
5	Ranupane	9
	Total	128

Source: *Primary Data Results of Interviews 2015*

Shamans of Tengger ethnic often use spells or *japa* forms than on medicinal plants as a traditional healing method. However, local knowledge about plant-based traditional medicines is still in their possession. The table shows the number of local plants for treatment known by the shaman. Out of the 128 types of medicinal plants, there are many same types of plants that are used for several herbal medicines, so that only 69 names of local medicinal plants have been identified. In addition to using plants, the village shaman also uses other mixed ingredients such as kerosene, coconut oil, salt, lime, palm sugar, and honey to concocting herbal medicines.

The table 1 above shows that Wonotoro village has the highest amount of knowledge of medicinal plants among the other 4 villages, this is also because the information obtained from this village is not only from the shaman but also has additional information from the village head, where this information is typically the same as given by the shaman. Other shaman of Ngadisari village is an old woman, and it has been more as a traditional birth attendant than a traditional healer, Tenggerese people of Ngadisari village have known her as a birth shaman. Otherwise shaman of the villages of Wonokitri and Argosari claimed that in the treatment method they prioritized the use of *japa* through the medium of water and *suwuk*. While the shaman in Ranupane village has no longer acts as a traditional healer due his activity of community spiritual leader. However he admits that still be able to remember several medicinal plants.

Knowledge of medicinal plants which are a part of the local wisdom of the Tengger ethnic community tends to be disappeared and degraded from generation to generation. The role of shamans who should be able become a traditional healer with the use of medicinal plants is more directed towards mystical and spiritual services. While the modern health providers such as Puskesmas certainly also pay more attention to the form of modern medical method as a basic treatment services.

Table 2: Distribution of The Medicinal Plants Based on Treatment and Traditional Health Care

No	Treatment and Health Care	Number of Plants
1	Baby Care	21
2	Fatigue, Stiffness, Sciatica	13
3	Wounds	10
4	Heat	7
5	High Blood Pressure	6
6	Cough	6
7	Diarrhea	5
8	Nosebleeds	5
9	Diabetes	4
10	Breastmilk Production	4

Source: *Primary Data Results of Interviews 2015*

From the table 2 above shows that shaman's knowledge about the use of medicinal plants is dominated by the use of local plants for the care of babies, while the use of plants for traditional treatment is more related to the impact of heavy work activities, such as fatigue, stiffness, and sciatica, then followed by wound care especially fresh open wound. For metabolic related diseases such as high blood pressure, there are 5 types of medicinal plants that can be used by shaman to treat it, which are celery, *melodi*, breadfruit, garlic, and *ciplukan*. In addition there are also 4 medicinal plants for diabetes, namely hibiscus, white corn, red potatoes, and *kecawitan*.

The process of transferring knowledge about medicinal plants in the Tengger ethnicity is done through the speech (*tutur*) and behavior (*laku*) culture. Meaning that from the older generation to the younger generation, knowledge of local medicinal plants use for treatment is given through oral understanding and examples of behavior. This form of knowledge transfer through speech and behavior are vulnerable to disappear or degenerates, because the knowledge transfer is only depends on the memories and daily behavior of the older generation, commonly are parents or grandmother and grandfather. Massive changes in social culture, technological advances, and population movements both outward and inwardly, make local wisdom related to knowledge about the use of medicinal plants increasingly forgotten. Especially if there's no serious effort to preserve the shape of local knowledge through documentation or inventory of knowledge of medicinal plants of Tengger ethnic

The traditional knowledge or local knowledge of the Indonesian people, regarding the types of medicinal plants, sections of plant uses as treatment, methods of treatment, and types of diseases that can be cured by traditional medicine is a wealth part of the local wisdom that needs to be explored,

developed, conserved, and optimized for the health development of the nation (Harini, 2000).

Table 3: Distribution of The Plant Sections Uses as Treatment

No	Plant Sections	Percentage (%)
1	Leaves	37.1
2	Fruits	13.5
3	Trunk	2.2
4	Flowers	3.4
5	Seeds	3.4
6	Roots	7.9
7	Others	32.5
	Total	100

Source: *Primary Data Results of Interviews 2015*

The plant sections that are widely used in traditional medicine are leaves (37.1%) and the least are stems (2.2%). While for other sections of the plant used such as tubers, rhizomes, and exudates as much (32.2%). The high frequency of the use of leaves as traditional medicinal ingredients seems to be related to several advantages such as the abundant production of leaves, an easier to obtain compared to other sections, and it is relatively easier to process because it can be used directly.

This result is in line with the opinion of Fann (1982) in Hara (2009), that people usually perceive that part of the leaf is the part that contains the most medicinal ingredients needed for traditional treatment. In addition, a leaf is the most easily obtained sections of a plant species. While in the tradition of Javanese and Balinese people, the use of leaf as side dish is quite a lot. Likewise in many locations in Indonesia, people have a tradition of eating uncooked leaf as a *lalap* or *lalapan* (Rahayu et al, 2012).

Table 4: Distribution of Medicinal Plants by Location Retrieval

No	Medicinal Plants Location	Percentage (%)
1	Yard	78.0
2	Forest / Mountain	13.0
4	Others	9.0
	Total	100

Source: *Primary Data Results of Interviews 2015*

Table 4 shows the percentage number of medicinal plants based on the location of the search or retrieval of it. Most plants can be obtained from the yard around the house or still in the village area (78.0%), plants must be search deep in mountains or forests (13.0%), and plants that can only being purchased at the local market (9.0%). The type of plants that must be purchased is because the plants do not grow well in the Tengger area.

Although most types of medicinal plants can be obtained easily in the yard around the house or village, some types of plants can only be obtained in the forest or claimb up a mountain. According to informants, there are also types of plants whose existence is very difficult to find, even the appearance of these plants is often associated with mystical things.

This type of plant that is difficult to find is likely an endemic plant on the slopes of Mount Semeru and Bromo, whose existence is threatened by the extinction. Conservation and cultivation efforts to maintain the existence of medicinal plants that can only be obtained in forests or mountains must be carried out by the district government, so that direct gathering of plants by local residents is not too often, because it will reduce the amount of plants in nature and lead to an extinction.

Table 5: Specimens Identification of Medicinal Plants

Medicinal Plants	Plant Sections	Efficacy
Bitterroot *(Tinospora crispa)*	root, stem, leaf	high blood pressure and fever
Areca *(Areca catechu)*	fruit	rheumatic
Karang Mongo *(Acorus calamus)*	leaf	diarrhea
Kencur *(Kaempferia galanga)*	rhizome	fever and childbirth care
Lampesu *(baccaurea reticulata)*	fruit	wounds
Langsat *(Lansium domesticum)*	bark	malaria
Liyas *(Donax canniformis)*	bud	eye pain
Banana Forest *(Musa x paradisiaca)*	rod	wound
Ramat Mondow *(Piper crocatum)*	leaf	rheumatic
Rusan Birisan *(Sansevieria trifasciata)*	leaf	antidote
Sasamba *(Senna alata)*	leaf	skin ulcer

Source: *Primary Data Results of Specimens Collections 2015*

Table 5 above is the result in exploration of local medicinal plants in the natural habitat of the Tengger ethnic region which can be identified through plant specimen collections. Many other types of medicinal plants which had been obtained from the interviews with informants, can not identified due to the unavailability of plant specimens or because the

medicinal plant habitat is not from the slopes of Mount Semeru and Bromo.

In addition further research and efforts to explore and identify medicinal plants used for traditional treatment and health care must be made comprehensively. Because a traditional medicines made by plants is generally considered safer than the use of modern chemical medicine. Traditional medicine has relatively fewer side effects than modern chemical medicine. WHO itself also recommends the use of traditional medicines including herbs in the maintenance of public health, prevention and treatment of diseases especially for chronic non communicable disease and degenerative diseases. WHO also supports any efforts to improve the safety and efficacy of traditional medicines (WHO, 2003).

4 CONCLUSION

From the results of the study, concluded that the Tengger ethnic community spread in the slopes of Mount Semeru and Bromo (Probolinggo, Pasuruan, and Lumajang) basically has a form of local wisdom related to knowledge about treatment by plant utilization. However at this time this local wisdom is threatened to disappear because Tenggerese people no longer practicing it in their daily life. Knowledge about the use of medicinal plants is more intended for childbirth and baby care, wound treatment especially on fresh open wound, and other disorders related to fatigue, stiffness, and sciatica. Moreover there is also knowledge about medicinal plants for metabolic related diseases such as high blood pressure and diabetes. Utilization of plant sections as a medicinal ingredient dominated by the use of the leaves, followed by other parts such as tubers and rhizomes. The existence of medicinal plants is relatively easy to obtain where most of these plants can be easily found around the yard or still in the village area, although some types of medicinal plants can only be found deep in the forests or mountains.

Further studies and efforts in exploring, inventorying, and documenting the local wisdom of the Tengger ethnic (Tenggerese people) regarding the knowledge of the use of local medicinal plants for treatment and health care need to continue as well as an efforts to conserve and maintain the existence of medicinal plants in it's habitat.

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