

## Short Communication; Medicinal plants in Ubud Monkey Forest in Bali, Indonesia: Diversity, distribution, traditional use and tourism attractiveness

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**Abstract.** *Wijana N, Rahmawati PW. 2020. Short Communication; Medicinal plants in Ubud Monkey Forest in Bali, Indonesia: Diversity, distribution, traditional use and tourism attractiveness. Biodiversitas 21: 2455-2461.* The present study attempts to survey and document the medicinal plant diversity found in Ubud Monkey Forest in Bali, Indonesia. The study covers three aspects, namely: ecosystems (vegetation), socio-systems (social) and cultural systems. The population from ecosystem aspects are all plant species that grow in the Ubud Monkey Forest. Numerous surveys were conducted to study the distribution pattern of medicinal plants. The purposive samples were used from the aspect of the socio-system, including: community leaders, stakeholders, traditional healers and local community with a total sample of 50 people. The cultural system discussed in this research is Balinese culture. The present study concluded that 28 species of medicinal plants in the Ubud Monkey forest that can be used for traditional medication; medicinal plants in the Monkey Forest are spread in the forest area; these species can be used for internal and external medicine; and various parts of medicinal plant species used for medication are parts of leaves, flowers, fruit, seeds, stems, and roots. The availability of these medicinal plants in Ubud Monkey Forest can be used as an additional attraction for visitors, i.e., for educational tours for students as well as for health and wellness tourism.

**Keywords:** Medicinal plants, indigenous uses, distribution pattern, tourism, tourism attractiveness

### INTRODUCTION

Plants and plant-based products have been used traditionally by native inhabitants in India from ancient times (Bargali et al. 2003; Padalia et al. 2015). In developing countries, a large number of people depend on products derived from plants for curing human and livestock ailments. According to the World Health Organization 80% of the world's population in developing countries uses traditional medicines (Parihar et al. 2014). Nature has been a source of medicinal treatments for thousands of years, and plant-based system continues to play an essential role in primary health care of 80% of world's population (Gupta 2001). In the beginning, these were the main source of the folk or ethnomedicine (Bargali and Shrivastava 2002; Vibhuti et al. 2019).

In the era of digital information, traditional medicine seems outdated compared to modern medical discoveries. However, many modern medicines are made from traditional medicinal plants. The discovery of modern medicine actually comes from the knowledge of traditional medicine. The Indonesian Ministry of Health defines Indonesian medicinal plants as listed in Minister of Health Decree No. 149/SK/Menkes/IV/1978, namely: (i) Parts of plants used as ingredients of traditional medicines or herbs, (ii) Plant parts that are used as starting material for precursors, (iii) the extracted part of the plant is used as

medicine (Kartikawati 2004).

Environmental degradation and deterrents have now taken place, both through the phenomenon of illegal logging and land conversion. Attention to medicinal plants in their original nature by the community has diminished. Communities generally do not know the benefits of plants in the surrounding environment, do not know the name of the plant, even indifferent to the existing plants. If this continues, it will have an impact on the existence and sustainability of the species of medicinal plants themselves. Therefore, it is necessary to conduct a study of medicinal plants, so that people and the younger generation are particularly encouraged to preserve and use them (Wijana and Setiawan 2017a,b; 2018a,b; 2019a,b; 2020; Wijana et al. 2018, 2020).

Medicinal plants are plants that have medicinal properties and are used as drugs in healing and prevent some diseases. The meaning of effective medicine is to contain active substances that function to treat specific diseases (Cotton 1996; Albuquerque et al. 2005). The parts used as medicinal ingredients are called *simplicia* (extract). *Simplicia* is a natural ingredient that is used as a drug that has not undergone any processing, in the form of dried material such as: cortex, wood, leaves, flowers, roots, bulbs, rhizomes, fruit skins, and seeds (Sujarwo et al. 2016) (Cotton 1996; Albuquerque et al. 2005). The types and size of the extracts are vary depending on the species and the

purposes of the extracts (Sujarwo et al. 2015).

Various kinds of Bali's indigenous knowledge of traditional medicine called "usada." Usada mostly written on palm leaves. There are many types of usada available for a specific medication, such as Usada Dalem (internal medicine), Usada Netra (eye diseases), Usada Sasah Bebai (medication for disease caused by black magic), Usada Tatenger Beling (diagnosing pregnancy). However, only limited people can get access to this manuscript (Nala 2007; Siregar and Pendit 2007).

The research was carried out in the Ubud Monkey Forest in Bali with the following objectives i.e., forest is a well-known tourist destination. Thus, the result of this research can be used as a popular scientific promotion of traditional medication; Local people often use this forest for "nunas tamba (asking for natural remedy)" by searching for several species of medicinal plants to be used as traditional medicine; and the absence of a study related to medicinal plants that grow in the forest in Bali. Based on the description above, it is important to do a study of medicinal plants in Ubud Monkey Forest in Bali, with the aim to: explore the composition and distribution of species of medicinal plants in Monkey Forest, Ubud, Bali; documenting traditional medicinal plant species benefits based on Balinese local genius; and exploring the benefits of this plant species for tourism activities.

## MATERIALS AND METHODS

### Study area

Ubud monkey forest is an ecosystem of Balinese long-tail monkey (*Macaca fascicularis*). It has around 12.5 hectares of forest which become habitat for 700 monkeys and around 186 species of trees. Ubud monkey forest also

well-known as Mandala Suci Wenara Wana. It lies within the Village of Padangtegal, Gianyar District, Bali Province, Indonesia (Figure 1).

### Data collection and sampling technique

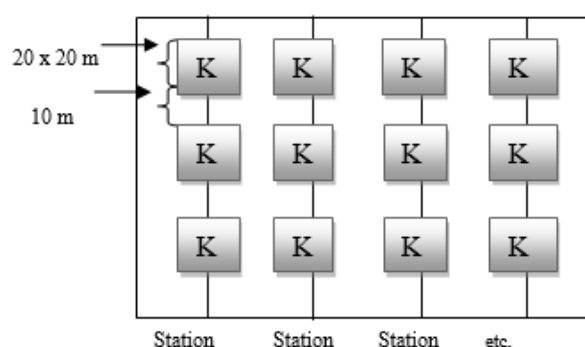
The methods of data collection were observation, interview and documentation. The instruments used were interview guidance instruments and observation sheets. The data analyzed descriptively (Cotton 1996). The population from ecosystem aspects are all plant species that live in the entire forest area of Ubud Monkey Forest. The sample in this study were all species of medicinal plants, which were in the Ubud Monkey Forest which were covered by a square of the size of 10x10 m<sup>2</sup> with a sum of squares of 100 squares (Barbour et al. 1987; Mueller-Dombois & Ellenberg 1974; Cox 1976; Ludwig and Reynolds 1988) There are two stages in species data collection, including: preparation and data collection.

This research involved four stages of preparation. First stage was observe research location. Second stage was request research permit. The third stage was asking permit for interview and data collection. The last stage was preparing the equipments. Several equipments were used in this research, such as: compass, rope, gauge, camera, voice recorder, note, pen, and bamboo sticks.

The implementation stage in collecting data were involving four steps. First step divided the forest location into two zones. The second step was spread the transect line as compass line. The third stage was laying the squares on the compass line. The last stage was data collection of plant species. The interval between one square and other was 10 meters each. Thank you very much for your feedback. These parts have been revised into past tenses and in paragraph.



Figure 1. Map of Ubud Monkey Forest in Gianyar District, Bali Province, Indonesia



**Figure 2.** Layout for sampling technique

**Table 1.** Respondent composition

Respondents	Total
Community leader	20
Villager	18
Village Officer	9
Balinese homeopathy	2
Head of the village officer	1
Total	50

### Ecosystem sampling technique

The research sampling technique from the ecosystem aspect concerning the medicinal plant species is a systematic random sampling technique. The data collection technique for ecosystem aspect research, namely medicinal plant species, used a quadratic method with a size of 10x10 m as much as 100 squares. The position of each square can be seen in Figure 2.

### Socio-system samples

Samples from the socio-system aspect are community leaders, tourism stakeholders, Balinese homeopathy, and the local community. For socio-system aspect, this research uses purposive sampling technique. The sample size of the socio-system for this research can be seen in Table 1.

### Data analysis technique

Data obtained from in-depth interviews were analyzed by a qualitative method. The data gathered firstly needed to be transcribed and translated from a non-English language (Bahasa Indonesia) into English. The thematic approach was used to analyze the data. In thematic analysis, once data is collected, it will be coded to search for similar themes and patterns and then to explore how the categorizations are presented by codes from case to case, from setting to setting.

## RESULTS AND DISCUSSION

### Plantation distribution in Ubud Monkey Forest

This research found 28 species of medicinal plants. Of the 28 plant species, 21% are in the family Moraceae. The

Moraceae family includes a family of plants spread in tropical forest areas to subtropics, namely in Asia, America, Africa and Australia. This family consists of 60 genera and around 1,400 species. *Morus*, *Artocarpus*, and *Ficus* are the three most abundant genera in the family Moraceae (Jones and Luchsinger 1979; Sharma 2007). This family is known as the primary source of flavonoids derivative compounds, aryl-benzofuran, and xanthenes flavonoid derivatives, consisting of no less than 3,000 species, some produce biological activity, as antitumor promoters, antibacterial, antifungal, anti-inflammatory, anticancer and others (Ersam 2004). Moraceae is widely used as a medicinal plant.

Parts of plants or plants used as traditional medical treatment according to Heyne (1987), Sujarwo et al. (2016), Cotton (1996), Albuquerque et al. (2005) are leaves, stems, roots, fruits, seeds, flowers, bark, although sometimes the whole tree is also used. Based on the results of a review of the Usada Taru Pramana literature, some medicinal plant books and interviews with the community, species can be used as traditional medicine in Bali. These species include Boni (*Antidesma bunius*), Jaka (*Arenga pinnata*), Sandat (*Canangium odoratum*), Banyan (*Ficus benjamina*), Waru (*Hibiscus tiliaceus*), Tabia bun (*Piper retrofractum*), Sonokeling (*Pterocarpus javanicus*), and Guava (*Syzygium aqueum*). Based on the results of observations, literature studies and interviews, the overall composition and coordinate of plant species with medicinal properties can be seen in Table 2. It can be seen in Table 2 that there are 28 medicinal plant species and a total of 471 individual species in Ubud Monkey Forest.

This research is supported by the results of ethnobotanist research related to medicinal plants, including: Suarez (2019) in his research in the South American Gran Chaco region; Putri et al. (2016) his research was conducted in Subang District, West Java, Indonesia; Andesmora et al. (2017) in the Kerinci forests, Indonesia; Rahayu and Andini (2019) in Buwun Sejati Village, Narmada Sub-district, West Lombok District, Indonesia; Jiofack et al. (2009) in the Nyong Atas Valley Forest, Cameroon; Pare et al. (2016) in Burkina Faso, Provinces of Seno (North) and Nayala (Northwest); Nguyen et al. (2019) in Vietnam; Chekole et al. (2015) in Libo Kemkem District, Northwest Ethiopia, in the Terai forest, West Nepal; Singh et al. (2012) in Terai, West Nepal; Putri et al. (2014) in Serangan, Bali; Sujarwo et al. (2016) in Bali. The results of those research from the ethnobotanist can be concluded that in forest areas, botanical gardens, rural areas, and on an island found tens to hundreds of plant species that can be used as traditional medicinal ingredients. The part of the plant that is most often used as a traditional medicinal ingredient by local people is the leaf part, and then follows the use of other plant organs such as roots, bark, flowers, fruit, seeds, and sap. Traditional medicines that have been made by traditional communities, are used to treat several types of diseases, which generally can be divided into two groups namely internal and external diseases.

**Table 2.** Efficacious plant species along with growing points in Ubud Monkey Forest, Bali, Indonesia

Botanical name Local name	Coordinate point	
	East Longitude	South Latitude
<i>Alstonia scholaris</i> R. Br. Pule	115° 15 24.69" E	8° 31 11.09" S
	115° 15 25.93" E	8° 31 11.94" S
	115° 15 33.84" E	8° 31 4.07" S
	115° 15 33.87" E	8° 31 6.58" S
	115° 15 33.94" E	8° 31 11.13" S
	115° 15 34.51" E	8° 31 9.18" S
	115° 15 34.50" E	8° 31 9.83" S
	115° 15 35.18" E	8° 31 4.63" S
	115° 15 35.16" E	8° 31 8.53" S
<i>Antidesma bunius</i> L. Boni	115° 15 23.91" E	8° 31 09.92" S
	115° 15 26.00" E	8° 31 10.45" S
	115° 15 27.32" E	8° 31 08.50" S
	115° 15 33.21" E	8° 31 6.57" S
	115° 15 33.21" E	8° 31 7.22" S
	115° 15 33.87" E	8° 31 5.27" S
<i>Aquilaria malaccensis</i> Lam Gaharu	115° 15 33.98" E	8° 31 10.45" S
<i>Arrenga pinn-afa</i> D Merr. Jaka	115° 15 25.35" E	8° 31 09.79" S
	115° 15 30.60" E	8° 31 4.51" S
<i>Artocarpus communis</i> Lamk Sukun	115° 15 30.65" E	8° 31 4.57" S
<i>Artocarpusheterophyllus</i> Lam Nangka	115° 15 23.40" E	8° 31 10.53" S
<i>Artocarpus elasticus</i> Reinw Tehep	115° 15 23.38" E	8° 31 10.43" S
	115° 15 24.04" E	8° 31 10.44" S
	115° 15 26.00" E	8° 31 10.45" S
	115° 15 26.66" E	8° 31 09.15" S
	115° 15 26.59" E	8° 31 11.17" S
	115° 15 27.32" E	8° 31 07.85" S
	115° 15 27.97" E	8° 31 08.50" S
	115° 15 28.60" E	8° 31 7.27" S
	115° 15 29.75" E	8° 31 6.59" S
	115° 15 30.59" E	8° 31 8.51" S
	115° 15 30.61" E	8° 31 9.91" S
	115° 15 31.26" E	8° 31 5.26" S
	115° 15 31.25" E	8° 31 6.56" S
<i>Caladium hortulanum</i> Birdsey Talas Hias	115° 15 34.62" E	8° 31 5.37" S
	115° 15 34.65" E	8° 31 5.96" S
<i>Canangium odoratum</i> Bail. Sandat	115° 15 24.77" E	8° 31 09.84" S
<i>Clerodendron paniculatum</i> L. Bunga Pagoda	115° 15 26.69" E	8° 31 09.87" S
<i>Cocos nucifera</i> L. Kelapa	115° 15 29.99" E	8° 31 8.56" S
<i>Baccaurea racemosa</i> (Reinw) Muell.Ag Kepundung	115° 15 29.75" E	8° 31 6.59" S
	115° 15 30.37" E	8° 31 5.97" S
	115° 15 29.93" E	8° 31 9.16" S
	115° 15 29.96" E	8° 31 9.78" S
	115° 15 30.59" E	8° 31 8.51" S
	115° 15 30.61" E	8° 31 9.91" S
	115° 15 31.26" E	8° 31 4.55" S
	115° 15 31.24" E	8° 31 7.87" S
	115° 15 33.22" E	8° 31 4.62" S
	115° 15 33.87" E	8° 31 4.62" S
	115° 15 33.87" E	8° 31 5.92" S
	115° 15 33.87" E	8° 31 6.58" S
	115° 15 34.53" E	8° 31 4.63" S
	115° 15 34.52" E	8° 31 5.28" S
	115° 15 34.52" E	8° 31 5.93" S
<i>Dysoxylum densiflorum</i> (Blume) Miq. Majegau	115° 15 24.70" E	8° 31 09.79" S
	115° 15 26.00" E	8° 31 09.80" S
	115° 15 26.66" E	8° 31 09.80" S
	115° 15 27.95" E	8° 31 06.97" S
	115° 15 29.93" E	8° 31 5.26" S
	115° 15 31.26" E	8° 31 8.51" S
	115° 15 33.21" E	8° 31 7.87" S
	115° 15 33.84" E	8° 31 4.07" S
	115° 15 33.86" E	8° 31 7.23" S
	115° 15 34.53" E	8° 31 4.63" S
	115° 15 34.52" E	8° 31 5.93" S
	115° 15 35.18" E	8° 31 5.28" S
<i>Ficus benjamina</i> L. Beringin	115° 15 27.95" E	8° 31 06.97" S
	115° 15 29.28" E	8° 31 7.21" S
	115° 15 29.94" E	8° 31 7.86" S
	115° 15 30.59" E	8° 31 7.86" S
	115° 15 31.24" E	8° 31 7.87" S
	115° 15 31.23" E	8° 31 9.82" S
	115° 15 31.89" E	8° 31 8.52" S
	115° 15 33.84" E	8° 31 4.07" S
	115° 15 35.18" E	8° 31 5.93" S
<i>Ficus rumphi</i> Bl. Ancak	115° 15 26.66" E	8° 31 09.15" S
	115° 15 29.93" E	8° 31 8.51" S
<i>Ficus septica</i> Burm.F Awar-awar	115° 15 20.49" E	8° 31 06.59" S
<i>Gamelina arborea</i> Roxb Jati Putih	115° 15 20.46" E	8° 31 06.58" S
	115° 15 20.13" E	8° 31 07.20" S
	115° 15 20.72" E	8° 31 07.20" S
	115° 15 20.00" E	8° 31 07.88" S
	115° 15 20.78" E	8° 31 07.92" S
	115° 15 21.19" E	8° 31 12.38" S
	115° 15 22.07" E	8° 31 12.38" S
	115° 15 22.07" E	8° 31 13.07" S
	115° 15 22.76" E	8° 31 10.92" S
	115° 15 22.72" E	8° 31 12.38" S
	115° 15 22.75" E	8° 31 13.17" S
<i>Hibiscus tiliaceus</i> L. Waru	115° 15 22.78" E	8° 31 13.19" S
<i>Inocarpus edulis</i> Forst	115° 15 25.34" E	8° 31 11.75" S
	115° 15 25.40" E	8° 31 13.05" S
<i>Mossoia aromatica</i> Becc. Mesui	115° 15 25.45" E	8° 31 13.07" S
<i>Michelia champance</i> L. Cempaka	115° 15 23.38" E	8° 31 10.43" S
	115° 15 27.97" E	8° 31 07.85" S
	115° 15 28.63" E	8° 31 8.51" S
	115° 15 34.50" E	8° 31 9.83" S
<i>Morinda citrifolia</i> L. Tibah	115° 15 34.60" E	8° 31 9.85" S
<i>Piper retrofractum</i> Vahl Tabia Bun	115° 15 28.64" E	8° 31 8.55" S
<i>Dalbergia latifolia</i> Jaw Sonokeling	115° 15 30.60" E	8° 31 4.51" S
	115° 15 30.54" E	8° 31 5.23" S
<i>Pteris tremula</i> R.Br Paku Pidpid	115° 15 30.50" E	8° 31 4.51" S
<i>Sandoricum koetjape</i> (Burm.F.) Merr. Sentul	115° 15 20.46" E	8° 31 06.58" S
	115° 15 29.93" E	8° 31 8.51" S
	115° 15 30.59" E	8° 31 8.51" S
	115° 15 33.22" E	8° 31 5.27" S
	115° 15 33.87" E	8° 31 6.58" S
	115° 15 35.18" E	8° 31 5.28" S
<i>Syzygium aqueum</i> Burm. F Jambu Air	115° 15 33.89" E	8° 31 6.59" S
<i>Toona sureni</i> Merr. Suren	115° 15 35.28" E	8° 31 5.38" S

### Benefits of plants in the Monkey Forest for traditional medicine

These results indicate that leaves are very beneficial for treatment or medication. All metabolic activity processes, especially anabolism in plants occur in the leaves. The results obtained from plants' anabolic process accumulate temporarily in the leaves. Furthermore, the primary and secondary metabolism products are found in the leaves. Another reason that can be proposed to use leaves for medication is because it is very easy to obtain and there is no effect on plant. Pick leaves for medication will not damage the plant itself, which is better compared to use other parts such as roots, stems, flowers fruit. Table 3 presents data on medicinal plant parts that could be used as raw material for medicine based on interviews results with several Bali homeopathic.

The use of medicinal plant species can be classified into medicine for the external and internal disease. For external medicine, such as medicine for burns, bruises, paralysis, swelling, aches, itching, pain in the ears, and as a negative antidote from the shaman, meanwhile, as medicine for internal medication, for example, diarrhoea, liver, high blood pressure, ulcer, kidneys, allergies, and anti-fatigue or stamina guards and medication for drug addicts. The types of disease can be divided into three types, namely common diseases, diseases due to magic and food-borne diseases.

### Benefit of plantation biodiversity in Ubud Monkey Forest for tourism industry

A substantial number of studies exist on the economic value of forest for tourism activities (Linberg and Enriques 1994; Elsasser 1999; Pearce and Pearce 2001; Wunder 1999). Elsasser (1999) counted that the forest recreation in Germany worth almost \$2,2 billion per annum. Moreover, local communities that lived adjacent to the protected areas profited significantly from tourism activities by selling handicrafts, providing accommodation and services (Linberg and Enriquez 1994). Similarly, Wunder (1999) found local community members that in the Ecuadorian Amazon region receive economic benefits that are significantly from tourism sector compared to other sources of monetary income. Lundmark et al. (2010) found that more people are employed in restaurants, bars, and other tourism-related infrastructures in the national parks and protected areas in Sweden. Jacobson and Robles (1992) explained that the forest tourism brings employment for local community, for example as drivers, local guides, waiter/waitress and hotel staffs, with the local economy benefitting through the multiplier effect generated by the circulation of their earnings through the community.

**Table 3.** Parts of plant that can be used as natural medicine and its usability

Scientific name	Part of plants					Benefits
	Root	Bark	Leaves	Flower	Fruit	
<i>Alstonia scholaris</i>		+	+			Medicine for burns, malaria medicine, and a sore body.
<i>Antidesma bunius</i>			+			Medicine for dizziness and dysentery medication.
<i>Aquilaria malaccensis</i>	+	+	+			Medicine for foot pain.
<i>Arenga pinata</i>			+			Medicine for bruising
<i>Artocarpus communis</i>			+		+	Medicine for liver disease.
<i>Artocarpus heterophyllus</i>			+		+	Body scrub and diarrhea medication
<i>Artocarpus elasticus</i>	+					Foot scrub to reduce foot pain
<i>Baccaurea racemose</i>	+		+			Swollen medicine
<i>Caladium hortulanum</i>	+					Medicine for body stiffness
<i>Canarium odoratum</i>			+			Swollen medicine
<i>Clroderodendron paniculatum</i>				+		Medicine for fever
<i>Cocos nucifera</i>			+		+	Leg pain medication and medicine for drug addicts.
<i>Dysoxylum densiflorum</i>		+				Medicine for dizziness and allergies.
<i>Ficus benjamina</i>			+			Negative antidote from shamans.
<i>Ficus rumphii</i>		+				Medicine for stamina
<i>Ficus septica</i>		+				Medicine for people who are paralyzed
<i>Gamelina arborea</i>		+				Kidney cleansing medicina
<i>Hibiscus tiliaceus</i>			+			Medicine for coughing and fever
<i>Inocarpus edulis</i>		+				Medicine for stomach pain.
<i>Massoia aromatica</i>		+				Sprinkled or applied to the baby to avoid an negative aura.
<i>Michelia champaca</i>			+	+		Medicine for swelling
<i>Morinda citrifolia</i>			+		+	Medicine for high blood pressure and as an ulcer medication
<i>Piper retrofractum</i>			+			Cure for hives
<i>Pterocarpus javanicus</i>			+			Medicine for stomach pain.
<i>Pteris tremula</i>	+					Cough medicine
<i>Sandoricum koetjape</i>	+	+	+			Medicine for diarrhoea.
<i>Syzygium aqueum</i>			+			An earache medicine
<i>Toona sureni</i>		+	+			Medicine for swelling pain.



Forest tourism is one of the important forms of educational tourism (Bhuiyan et al. 2010). In the forests, students can learn natural ecosystems, diversification of the local floral and fauna, natural conservation. Students may also learn life conditions of animals and plants in the forest areas and learn how to protect these ecosystems (Bhuiyan et al. 2010). Educational tourism is a valuable learning system for the tourists and local community. Therefore, the findings of this research can be a valuable knowledge for tourism managers in Ubud Monkey Forests to label the medicine plants available in this area and then use it as a material for educational tourism. The results of this study make it easier for teacher, students and local guides to recognize existing medicinal plant species in the forest and learn the benefits of each plant for natural medicine.

Forest-based tourism is considered as an effective methods for conservation of forest resources and protection of its ecosystem and biodiversity (Alam et al. 2010). Furthermore, Alam et al. (2010) explained that the development of forest-based tourism can improve local community awareness to preserve the forest ecosystem and attract more visitors. Moreover, forest-based tourism generate income for local community, thus reduce forest dwellers in the destination.

Wheatley and Harya (1994) found that the local community in Ubud has effectively protect flora and fauna in the Monkey Forest. They argue that forest-based tourism have increase local community awareness to conserve environment in Ubud Monkey Forest and to protect tourism destination attractiveness. The availability of medicinal plants di Ubud Monkey Forest can be used as an additional attraction for visitors. For certain medicinal plants, visitors may allowed to take some parts of the plants for medical purposes. However, tourism stakeholders should ensure that the sustainable use of natural environment to achieve long-term sustainability of the forest recreation tourism, as suggested by Lee et al. (2010).

In conclusion, 28 species of medicinal plants found in the Monkey Forest were used by the local community for natural medication. The medicinal plants in the Ubud Monkey Forest are spread evenly in the whole area. In general, the benefits of medicinal plants in the Monkey Forest can be classified into two types of medication (internal and external medication) based on Bali's Natural Medication Bible called "the Lontar Usada Taru Premana". The medicinal plants can be processed into several types of medication, such as: for natural drinking remedies, for body scrub, and for natural spay or inhaler. The preservation of medicinal plants in Ubud Monkey Forest is pivotal to promote local genius of traditional medicine and to promote ecotourism for economic benefit for local community.

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