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Identification of Medicinal Plants in UIN Kiai Haji Achmad Siddiq Jember

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Abstract Due to Indonesia's high biodiversity, medicinal plants have the potential to become alternative treatments and boost national economic competitiveness. The investigation was conducted during November in 2022. This research was conducted to acquire information about medicinal plants in the research location in order to expand knowledge about medicinal plants and provide the area management with additional data. This research's main objective is to develop the potential of medicinal plants near UIN KHAS Jember in an endeavor to enhance the health of campus residents. Secondary goals of this research include learning how to use medicinal plants, how to obtain medicinal plants, and the varieties of medicinal plants used by the UIN KHAS Jember community. An exploratory survey and interviews with the residents of UIN KHAS Jember are employed. Community participation was obtained using a semi-structured interview technique accompanied by a list of queries such as the local name of the plant, the part used, its benefits, how to use it, etc. Each plant used as a constituent in traditional medicine is identified.

Keywords: Ethnobotany, Medicinal Plants, Identification, UIN KHAS Jember

INTRODUCTION

Medicinal plants are categories of plants that function and are effective as medicine and are used to treat or prevent a variety of diseases. Medicinal plants can be ingested orally, topically, or inhaled, allowing their use to fulfill the concept of cell receptors' action in receiving chemical compounds or stimuli. Medicinal plants that can be used as medicine, whether they are cultivated or not. The community combines and administers these botanicals as medication to treat disease.

In the current economic era, Indonesians favor alternative medicine derived from medicinal plants because, in addition to being inexpensive, medicinal plants are also readily available. Medicinal plants are not only abundant in rice fields, by ponds, and on barren lands. Aside from the stems and roots, the leaves are the most commonly used part of a plant for medicinal purposes. This is because the foliage of different medicinal plants have varying uses and functions for each disease. So that it becomes an impediment to the community's ability to utilize the properties of the foliage of local plant species. Consequently, identifying these plants can facilitate and provide information about the benefits of the plants themselves to the general public.

In addition, there are no negative adverse effects associated with the use of medicinal plants, so there is no cause for concern among users. However, the diversity of medicinal plants in the environment surrounding the UIN KHAS Jember campus has not been fully investigated scientifically. As a preliminary data compilation for optimizing the composition of medicinal plants, this research is essential. In addition, there is no information regarding which plant parts are commonly utilized and how they are processed.

This is necessary in order to preserve campus sustainability, local knowledge, and the economic benefits of medicinal plants. Consequently, the purpose of this study is to determine how to use medicinal plants, how to obtain medicinal plants, and the varieties of medicinal plants utilized by the residents of UIN KHAS Jember, Kaliwates subdistrict, Jember Regency, East Java Province.

METHOD

This study was conducted in the UIN KHAS Jember, Kaliwates subdistrict, Jember Regency, East Java Province, in the family medicine garden (Toga in Indonesian). This form of research is a qualitative descriptive research that describes medicinal plants (taxonomy, method of use, used portions, sources of plant extraction, and medicinal plant properties). Utilizing field surveys and interviews, data collection techniques were conducted.

The biology administrator of UIN KHAS Jember, who frequently uses or knows a great deal about medicinal plants, was the source of the data collected during the interview. The research design was exploratory, collecting data on the varieties of medicinal

plants as well as how to use medicinal plants to treat lesions or maladies on a daily basis. This study employed interview guides, observation sheets, and documentation that had been validated by two expert validator lecturers so that they could be used for data collection with confidence. The techniques for data analysis consist of data reduction, presentation, and conclusions.

Based on the results of the interviews, it was found that around the UIN KHAS Jember campus environment there are various environments including the diversity of medicinal plants. Medicinal plants that have been found as many as 20 plant species from 16 families (Table 1) include Annonaceae, Acanthaceae, Acoraceae, Moraceae, Piperaceae, Portulacaceae, Rutaceae, Asteraceae, Basellaceae, Cariccaceae, Crassulaceae, Cyperaceae, Lamiaceae, Zingiberaceae, Euphorbiaceae, Mimosaceae. Several families of medicinal plants encountered can be seen in Table 1.

Table 1. List of names of medicinal plants in the UIN KHAS Jember campus environment, Kaliwates sub-district, Jember Regency, East Java Province

Famili	Species name	Common Name	Local Name	Image
Annonaceae	*Annona muricata* L.	Soursop	Surkaya	
Acanthaceae	*Andrographis paniculata* Ness.	Sambiloto	Samburoto	
Acoraceae	*Acous calamus* L.	Jeringau	Ariango	

Moraceae	*Ficus septica Burm* L.	Awar-awar	Bora-borang	
	Morus alba L.	Murbei	Murbei	
Piperaceae	*Peperomia pellucida* L.	Suruhan	Kaca-kaca	
	Piper betle L	Betel	Pamera'	
Portulacaceae	*Talinum paniculata*	Javanese Ginseng	Ginseng	
Rutaceae	*Citrus aurantifolia*, Swingle	Lime	Lemo nipis	
Asteraceae	*Chromolaena odorata* L.	Laruna	Anggunin	

Basellaceae	*Basella rubra* Linn.	Gendola	Lallere'mamea	
Cariccaceae	*Carica papaya* Linn.	Papaya	Kowaya	
Crassulaceae	*Kalancoe pinnata*	Cocor bebek	Ewangattuo	
Cyperaceae	*Kyllinga brevifolia* Rottb.	Teki	Amutta	
Lamiaceae	*Orthosipon stamineus* (Bl.) Miq	Cat whiskers	Kumis kucing	
Zingiberaceae	*Kaempferia galangal* L.	Aromatic ginger	Kencur	

	Zingiber officinale Rosc.	Red ginger	Jahe	
Euphorbiaceae	*Jatropha curcas*	Fence distance	Tang'tangan	
Mimosaceae	*Mimosa pudica* Linn.	Mimosa	Putri malu	

Each medicinal plant has distinctive morphological features. This character is used for scientific identification purposes. Observation of morphological characteristics was conducted via direct observation using observation sheets, as was the case for medicinal plant species representing each family based on the results obtained.

a. Annonaceae Family

The characteristic feature of the inflorescence is the hemicyclic form of the petals and the circular crown (Novianti, 2019).

b. Achantaceae Family

Achantaceae family herbaceous plants, single leaf, opposite and without leaf supports. The flowers are sometimes single or in pairs, growing from the leaf axils and the flowers are bisexual (Novianti, 2019).

c. Acoraceae Family

The characteristics of the Acoraceae family are reddish rhizome, white flesh, strong scented leaves when crushed, elongated leaves, hermaphrodite flowers, growing in wet places (Widyaningrum, 2019).

d. Moraceae Family

Plants produce sap, large supporting leaves that hug the stem or are a roof membrane (thin membrane that covers the base of the stem nodes). Hard fruit or stone fruit (Tjitrosoepomo, 2010).

e. Piperaceae Family

It has a characteristic wet stem or shrub often climbing with a single leaf that sits spread out, flowers arranged as grains or pepper flowers, and fruit in the form of stone fruit. Stamens number 1-10, ovaries 1-4 apocarps or syncarps with atrophic ovaries, large seeds with small institutions (Tjitrosoepomo, 2010).

f. Portulacaceae Family

Annual herb that has a round stem, has a soft and smooth leaf surface, rather succulent flesh

g. Rutaceae Family

Flowers usually have discs inside, on the vegetative apparatus there are real oil, balsam or resin glands (Tjitrosoepomo, 2010).

h. Asteraceae Family

The flower in the cup or the short ear is the communion of all flowers. The protective leaves of the flowers themselves are often present as scales.

i. Basellaceae Family

Most are terna and thickening in a special secondary way (Tjitrosoepomo, 2010).

j. Cariccaceae Family

A tree with a large single leaf, the leaves are divided into fingers, without a supporting leaf. There are cells in the stem or sap duct that are segmented (Tjitrosoepomo, 2010). It has a soft and segmented stem. The leaves are thick fleshy and contain a lot of water. The color of the leaves is light green (sometimes gray).

k. Crassulaceae Family

It has a soft and segmented stem. The leaves are thick fleshy and contain a lot of water. The color of the leaves is light green (sometimes gray).

l. Cyperaceae Family

A distinctive feature of the Cyperaceae family is the triangular-shaped stem. However, there are several species that have round stems, it's just that they are very rare and the stems are solid and rarely empty (Tjitrosoepomo, 2010).

m. Lamiaceae Family

It has the characteristics of magnoliophyte and this family is rich in essentials (Novianti, 2019).

n. Zingiberaceae Family

Plants with wet stems, long-lived, rhizomes and leaves with large, bare midribs, real stalks and often grooved on the upper side (Tjitrosoepomo, 2010, p. 421). In addition, Zingiberaceae flowers are quickly damaged so that the spread of Zingiberaceae rarely occurs (Suriyanto et al., 2019).

o. Euphorbiaceae Family

Rare plants have multiple flower decorations and if there are flower parts, there will be as many as 5. The fruit pods always consist of 3 fruit leaves that form 3 chambers with 1 or 2 ovaries in each chamber (Tjitrosoepomo, 2010).

p. Mimosaceae Family

It has a distinctive feature, namely the seeds are arranged elongated in the form of pods and the leaves are in the form of compound leaves, multiple, which are spread out and have supporting leaves. Flowers are in the form of bunches or heads (Tjitrosoepomo, 2010).

Based on the results of the interviews, the medicinal plant species that were obtained by researchers were used by UIN KHAS Jember students as the main ingredients for traditional medicine. Most of the medicinal plants found have the same treatment, both in terms of processing method, presentation method, use and utilization, as shown in Table 2.

Table 2. Techniques for utilizing parts of plants as medicine materials at UIN KHAS Jember.

Types of Medicinal Plants	Organs used	Serving method	Diseases suspected to be treatable
Soursop (*A. muricata* L.)	Leaf	Boiled and then drink	Cancer and diabetes
Sambiloto (*A. paniculata*)	Leaf	Boiled and then drink	Back pain, kidney inflammation, bloating and aching rheumatic pain
Jeringau (*A. calamus* L.)	Leaves and rhizomes	Boiled and then drink or smeared	Deworming and antibacterial
Awar-Awar (*F.septica*)	Leaf	Boiled and then drink or sticked	Appendicitis, reduce heat and relieve toothache
Suruhan (*Peperomia pellucida*)	Leaves and stems	Boiled and then drink	Headache, shortness of breath and reduce pain in the body
Murbei (*M. alba*)	Leaf	Boiled and then drink	Smooth digestion of food
Sirih (*Piper betle*)	Leaf	Boiled and then drink or dropped to the eye	Blurred eyes and gout
Ginseng jawa (*T. paniculatum*)	Leaves and roots	Boiled and then drink	Kidney

Jeruk nipis (*C. aurantifolia*)	Fruit	Squeezed and added soy sauce and salt	Cough with phlegm, malaria and tonsils
Mengkudu (*M.citrifoli*)	Fruit	The juice is mixed with honey and drunk	Jaundice
Laruna (*C. odorata* L.)	Leaf	Kneaded then smeared	External wounds and cough medicine
Gendola (*B. rubra* Linn.)	Roots, stems and leaves	Boiled or consumed directly	Cholesterol, cancer, and gout
Pepaya (*C. papaya* Linn.)	Leaf	Boiled and then drink	Kidney stones
Cocor bebek (*K. pinnata*)	Leaf	Pounded and then smeared	Boils and burns
Teki (*K.brevifolia* Rottb.)	Roots, stems and leaves	Boiled and then drink	Sore eyes and reduce fever
Kumis kucing (*O. aristatus*)	Leaf	Boiled and then drink	Kidney stone
Kencur (*Kaempferia galangal*)	Rhizome	Boiled and then drink	Treat cough, and antibacterial
Jahe merah (*Z. officinale*)	Rhizome	Boiled and then drink	Colds, diarrhea, and body warmers
Jarak pagar (*J. curcas*)	Leaf	Pasted or smeared	Diarrhea, itching, and rheumatism
Putri malu (*M. pudica*)	Roots, stems and leaves	Dried and laid	Insomnia

Based on the habitus of the medicinal plants used, of the 20 species, most of the habitus was in the form of shrubs, besides that there were also medicinal plants in the form of other habitus, namely trees, shrubs, and herbs. The part of the plant used as traditional medicine is mostly the leaves because they contain many active compounds, followed by fruits/tubers and rhizomes, stems, and roots.

The organs of medicinal plants that are often used are the leaves. Leaves can function as antioxidants due to the presence of phenolic compounds such as flavonoids and phenolic acids. Medicinal plants containing flavonoids have antioxidant, antibacterial, antiviral, anti-inflammatory, antiallergic, and anticancer activities. The effect of this compound is to ward off free radicals. Several diseases such as atherosclerosis, cancer, diabetes, Parkinson's, Alzheimer's, and decreased immunity have been known to be affected by free radicals in the human body.

Based on the results of interviews with campus students, they often use medicinal plants when injured or sick in the body and are first aid when sick. In addition, modern medicine will help when the healing process is slow. Medicinal plants that are often used by students at the UIN KHAS Jember campus, Kaliwates sub-district, Jember Regency, East Java Province and which have been supported by scientific data are

medicinal plants from the Zingiberaceae family. Because the ingredients contained in the Zingiberaceae family are the most widely used by the community in its rhizome part because it contains essential oils which include zingeberin, kaemferia, limonene, borneol, cineol, zingeberal, linalool, geranil, kavikol, and shogaol (Washikah, 2016).

One of the most frequently used species is red ginger (*Zingiber officinale* Rosc). Ginger medicinal plants are used to treat diarrhea and colds. This data is supported by scientific data in Qamariah's research (2018) by applying warm compresses to the body using grated red ginger rhizome (*Zingiber officinale* Roscoe Var Rbrum) to reduce pain. This is because red ginger contains flavonoids, saponins, polyphenols and essential oils (Widyaningrum, 2019).

Species from the Piperaceae family such as errant (*Peperomia pellucida* L.) and betel (*Piper betle* L.), the stems and leaves are used to treat headaches, shortness of breath and reduce body aches. Suruh and dried betel plant extracts contain significantly higher total antioxidants than fresh betel and betel extracts (Sitorus et al., 2013).

The environmental conditions of the UIN KHAS Jember campus are still very natural and still pay attention to environmental sustainability, especially plants that have medicinal properties. According to Tudjuka et al. (2014) the difference in the level of diversity of several plant species is influenced by several environmental factors such as environmental stress, area size, heterogeneous habitat, altitude and latitude, productivity, community age, herbivory and disturbance.

CONCLUSION

Based on the results of the identification of medicinal plants around the UIN KHAS Jember campus, Kaliwates sub-district, Jember Regency, East Java Province, 20 plant species from 16 families were found, including Annonaceae, Acanthaceae, Acoraceae, Moraceae, Piperaceae, Portulacaceae, Rutaceae, Asteraceae, Basellaceae, Cariccaceae, Crassulaceae, Cyperaceae, Lamiaceae, Zingiberaceae, Euphorbiaceae, and Mimosaceae. While the 20 species of plants used as the main ingredients of traditional medicine include Soursop (*A. muricata* L.), Sambiloto (*A. paniculata*), Jeringau (*A. calamus* L.), Awar-Awar (*F. septica*), Suruhan (*Peperomia pellucida*), Mulberry (*M. alba*), Betel (*Piper betle*), Java Ginseng (*T. paniculatum*), Lime (*C. aurantifolia*), Noni (*M. citrifoli*), Laruna (*C. odorata* L.), Gendola (*B. rubra* Linn.), Papaya (*C. papaya* Linn.), Cocor Bebek (*K. pinnata*), Teki (*K. brevifolia* Rottb.), Kumis Kucing (*O. aristatus*), Aromatic ginger (*Kaempferia galangal*), Red Ginger (*Z. officinale*), Jatropha curcas (*J. curcas*), and Putri bash (*M. pudica*). The most common species found as medicinal plants are bush habitus. Most of the plant parts that are often used by the campus community to treat diseases traditionally are the leaves by boiling and then drinking the water.

REFERENCES

Agus. (2008). *Indonesian Medicinal Plants*. Jakarta: Salem Medika.

Aserani, K.S. (2010). How to Process and Benefits for Health. *Indonesian Herbal Plants, (1),* 1-186.

Aspan, R.M. (2008). *Taxonomy Collection of Medicinal Plants Citeureup Medicinal Plants Garden*. Jakarta: Food and Drug Supervisory Agency of the Republic of Indonesia.

Dalimartha. (2003). *Atlas of Indonesian Medicinal Plants*. Jakarta: Publisher of the Nusantara Self-Help Development Library.

Manongga, D., Prestiliano, J., & Yanti, I. D. (2007). Expert System Program Design for Treating Minor Illnesses Using Traditional Medicine. *Journal of Information Technology*, *1*, 116-131.

Mashhud. (2010). Indonesian National Workshop on Medicinal Plants. Retrieved 09 24, 2014, from the Ministry of Forestry of the Republic of Indonesia: http://www.dephut.go.id/index.php/news/details/7043

Novianti. (2019). Family Medicinal Plants. Spice Plant Research Institute (BALITRO), Bogor.

Novianti. (2019). *Forest Plants with Medicinal Properties and How to Use them by the People of Irian Jaya*. Forestry Research Institute, Manokwari.

Suriyanto et al. (2019). Cultivation of Medicinal Plants. PT Rineka Cipta, Jakarta.

Tjitrosoepomo. (2010). Forest Sources of Food and Employment. Jungle Ambassador. Perum Perhutani Monthly Magazine. Issue 237/XXIV. Jakarta.

Tjitrosoepomo. (2010). Study of Medicinal Plants Used by Communities Around the Bengo-Bengo Educational Forest. Skipsi Department of Forestry, Faculty of Agriculture and Forestry, Hasanuddin University, Makassar. (unpublished).

Widyaningrum. (2019). Law of the Republic of Indonesia Number 41. Concerning Forestry. Jakarta.

Wijayakusuma, H.H. (2000). The Potential of Indigenous Indonesian Medicinal Plants As Health Products. *Technology Research and Development, 1,* 1-7.