Medicinal plant of Gunung Prau, Indonesia: exploration and ethno-botanical study

M Abdullah*, B Priyono, N E Kartijono, F P M H Bodijantoro

Department of Biology, Faculty of Mathematics and Natural Sciences, UniversitasNegeri Semarang, Indonesia

*Corresponding author: abdullah.m@mail.unnes.ac.id

Abstract. This study aims to obtain information about local people's knowledge of plant species, both wild in the forest and cultivated by the local community for use as medicine and health. The results of reference tracing will also reveal the potential active ingredients useful in the medical industry based on the identified plant species. This research design is descriptive exploratory. The study was conducted for 8 months. The work steps in this study consisted of 1) preliminary study, 2) determining the area of observation and respondents, 3) exploration of plants in residential and forest areas, 4) interviewing respondents, 5) analysis of research results. The results showed that as much as 51.6% of the explored plants (wild and cultivated) were known to have medicinal properties. Most of the medicinal plants found in the yard, while others in gardens and forests. The people around the slopes of Mount Prau still use several types of plants to treat various diseases. However, it is unfortunate that people’s knowledge about the efficacy and number of types of diseases that can be treated for each plant species is still relatively low.

1. Introduction
Indonesia is known as the center of the world's biodiversity, with tropical forests that function as the world's lungs. Forests are a very useful natural resource, especially in producing food and medicine as well as other forest products. In Indonesia's forests, more than 239 species of food plants are found [1] and more than 2,039 species of medicinal plants [2] which are useful for nourishing and treating various diseases.

One of the first steps that need to be taken in forest management is knowing its potential, for example, assessing the use of various types of plants by the people living around the forest. This can be done by conducting ethnobotany studies on forest communities. One area of ethnobotany that studies the use of plants as medicine by local communities. Approximately 40,000 species of plants in the world are known to be used as traditional medicine obtained from wild forests [3]. Based on various ethnopharmacological studies in Indonesia, it is known that there are around 9,600 species of plants that have been used by 400 different ethnic groups to maintain health and treat various diseases [4]. The potential of biodiversity, especially plants in Indonesia that have medicinal properties, needs to be studied and investigated further before the extinction of plant species that may have the ability to cure various deadly diseases. Extracting knowledge about the use of wild and cultivated forest plants by the surrounding community is very important as data for assessing the use of plants in medicine and maintaining health. This research will be very appropriate because it is carried out through ethnotharmacological studies of medicinal plants in...
rural communities around the mountains which are geographically located in remote areas and far from access to health facilities.

Rural communities around the slopes of Mount Prau do not have easy access to government-provided health facilities such as hospitals located near the city center. The remotelocation of the village and difficult to reach means that it takes local people a long time to go to the puskesmas to get treatment when sick. Therefore, the people around Mount Prau who have lived for a long time from generation to generation certainly have the knowledge and skills in using the surrounding biological natural resources for use in medicine and health.

2. Methods
This research's design is descriptive exploratory research about a condition by making descriptions in a systematic, factual and accurate way about the facts, characteristics and examining the relationship between the phenomena being investigated [8].

The steps of research work can be explained as follows: plant exploration, collection, identification, and interview. Exploration of both wild and cultivated plants with assistance from local guider to determine the existence of plant habitats, especially those with medicinal properties. In addition, in the exploration, plant samples were also taken to be scientifically identified and collected as an herbarium. Exploration is carried out in the area of residents' homes, gardens, and forests around the village.

Each sample taken is used as a collection by making dry herbarium or wet preserves. Known plant species are identified in the field, while those that are not yet known will be identified in the Plant Taxonomy Laboratory of the Department of Biology, Faculty of Mathematics and Natural Sciences, UNNES or the Herbarium Bogoriense, Bogor Botanical Gardens, LIPI. The identification results of wild plants with medicinal properties are based on local community sources who use plants as medicine and / or are based on literature studies, then proceed with an assessment through reference tracing to determine the potential of active ingredients contained in each type of plant known as medicinal plants.

Interviews were conducted with 5 (five) people as key figures in medicinal activities using plants. Determination of respondents using the snowball sampling method. Interviews were also conducted with at least 20 residents of village who were determined based on purposive sampling to determine the use of medicinal plants by residents. Interview in person and through a questionnaire. Interviews were conducted with the aid of a recording device.

Classification of the type of disease treated based on [2] is used as the basis for determining the value of medicinal uses of plants.

3. Results and Discussion
Based on preliminary observations, we determined Mranak forest, which is located near the village of Genting Gunung, Sukorejo District, Kendal Regency, was the forest to be explored. This forest is one of the slopes of Mount Prau to the northeast. Apart from that, the preliminary study also determined the key respondents in this study. The five most representative people were obtained to serve as resource persons for the use of medicinal plants by the community around the slopes of the Prau mountains. The five people consisted of 2 local community leaders, 2 toga (family medicinal plants) activists, and a youth leader who is active in preserving the Prau mountains' biodiversity. The selected key respondents were those who were frequently asked for help from local community members or for information about traditional medicinal plants using plants.

The results of the plant exploration found that there were 124 species of seed plants belonging to 55 families. A total of 51.6% of the explored plant species were known to have medicinal properties, consisting of 37 cultivated plant species and 27 wild species. Yard areas are known to have the highest number of medicinal plants compared to garden and forest areas (Figure 1).
Local people’s knowledge about the efficacy and number of diseases treated for each plant species is still relatively low (14%) when compared to the potential that plants have for treatment based on literature studies (Figure 2).

The use of plants for treatment is only taken from certain parts. As many as 50% of the medicinal plants used by the Prau mountain people are taken from the leaves. Most of the leaves are used by boiling them to treat several diseases, while a small portion of them is ground or mashed. The percentage of other plant parts used as medicine are roots (5%), rhizome (20%), flowers (5%), fruit (5%), seeds (5%), and bark (5%).

Based on the classification of the types of diseases treated, the results of this study indicate several types of diseases, including: head disease and fever, skin disease, respiratory disease, wound treatment, circulatory disorders, diseases specifically for women, muscle and joint disease, sewage disease, tonic, pregnancy and childbirth care, fractures, and antidotes.

4. Conclusion
Total of 51.6% of the explored plant species were known to have medicinal properties, consisting of 37 cultivated plant species and 27 wild species. Public knowledge about the efficacy and number of diseases treated by each plant species is still relatively low (14%) when compared to the potential that plants have for treatment based on literature studies.
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