Diversity of medicinal plants in Batu Katak Village, Gunung Leuser National Park, Indonesia

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Abstract. In this study there were 33 types of medicinal plants utilized by people of Batu Katak Village that were directly bordered to the Gunung Leuser National Park. These medicinal plants can be found on community cultivation lands and forests of Gunung Leuser National Park. This research method was carried out with an inventory of types of medicinal plants and interviews with the community to find out the benefits and parts of medicinal plants used by Batu Katak Village community. Batu Katak community makes use of plants' root, rhizome, stem, bark and leaves all parts of the plants as medicine. The most widely used part is the leaves (75%), as much as 25 % used part are rhizome, root, stem and bark. The majority of the people of Batu Katak Village are ethnic Karo. Karo ethnicity itself has local knowledge in using medicinal plants that have been passed down for generations.

1. Introduction
Medicinal plants and traditional medicine since ancient times play an important role in maintaining health, maintaining stamina and treating diseases. Therefore, medicinal plants and traditional medicines have firm roots in the lives of some people until now [1]. Indonesia is a tropical country that has a fairly large forest area. Forest is an association of life, both plants (flora) and animals (fauna) which have great benefits for the Indonesian people, both economic and ecological benefits [2]. Indonesia's rainforests are home to thousands of species diversity. So, it is not wrong if Indonesia is called Megabiodiversity Country. Indonesia's land covers only 1.3% of the earth's landmass, but Indonesia has 10% of the world's plants, 12% of mammals, 16% of reptiles and amphibians, 17% of birds [3].

Indonesia is one of the biggest medicinal plant users in the world along with other countries in Asia such as China and India. This is very closely related to the wealth of natural resources owned and the cultural diversity that has been maintained until now. Indonesia's tropical forests store thousands of medicinal plant species and are inhabited by various ethnic groups with their own traditional medical knowledge. In Indonesia, there are still many species of medicinal plants that have not been cultivated, so their availability is still dependent on nature [4]. Forest resources can be divided into two parts, namely in the form of wood forest products and their derivatives (timber products) and non-timber forest products (non-timber product). One of the non-timber forest products that are often used by the
community around the forest is medicinal plant [5]. Gunung Leuser National Park is a National Park that crosses two provinces, Aceh and North Sumatra.

The purpose of this study is to describe the potential of medicinal plants in the forests around the Gunung Leuser National Park in the Bahorok District area, their traditional use and the conservation efforts that can be carried out. Identifying the potential of medicinal plants in the Sumatran forests, especially in the forests of Gunung Leuser National Park with a high level of species diversity, a variety of habitats and parts used by the community.

2. Materials and methods
This research was conducted in the Batu Katak Village of Gunung Leuser National Park in 2018. The research method was carried out by direct inventory and interviews with local communities. Inventory of species was conducted by recording all species found both in the forest and outside the forest. Interviews were conducted to find out the types of medicinal plants that were used, the parts of plants that were used and how to process these medicinal plants. Identification of plants found at the observation site is carried out directly in the field with the help of identification of the type of local community.

3. Results and discussion
In this research conducted in the Bahorok District, Langkat Regency, North Sumatra Province. Almost all villages in Bahorok Subdistrict are directly adjacent to the National Park. The use of medicinal plants in the Leuser Ecosystem has been going on for a long time. Communities such as those from the Karo ethnic group are very dependent on medicines derived from plants around the forest. Products such as Karo oil, essential ingredients, param and others are a necessity for health, especially for women, infants and children. Many types of plants that are used by the community are hereditary but their scientific names are unknown and have not been properly inventoried. Certain types of animals may have less presence in the forest because no conservation efforts have been made. The existence of the numbers also needs to be examined as a conservation effort for certain species that have begun to be threatened. In this area, there are medicinal plants in the region, and there are also those cultivated by the surrounding community right outside the national park forest area around the village.

The results of the interviews conducted with some informants from Batu Katak village community suggested that there were 34 species of medicinal plants used by the community as traditional medicine. These plant species are presented in Table 1.

| No | Local name       | taxonomically name | Family       | Utilization     | Plant part | location                      |
|----|------------------|--------------------|--------------|-----------------|------------|-------------------------------|
| 1. | Daun Nungke      | *Peronema canescens* Jack. | Lamiaceae    | aches           | leaf       | outside forest                |
|    |                  | *Tinospora crispa* | Menispermaceae | malaria         | root       | outside forest                |
| 2. | Akar Ali-ali     | *Neolamarckia cadamba* (Roxb.) | Rubiaceae    | traditional Karo medicine | leaf       | outside forest, inside forest land cultivation |
| 3. | Pohon kelempen  | *Blumea balsamifera* L.DC. | Asteraceae   | stomach         | leaf       | cultivation of medical plant land |                          |
| 4. | Galunggung       |                     |              |                 |            |                               |
| 5. | Ekor Tempulak    | *Uraria crinita*    | Fabaceae     | bone            | leaf       | cultivation of medical plant land |                          |
| 6. | Cecepan          | *Castanopsis*       | Fagaceae     | Swollen         | bark,      |                               |
| No. | Common Name                      | Scientific Name       | Family          | Common Uses                        |
|-----|----------------------------------|-----------------------|-----------------|------------------------------------|
| 7   | Costata stem forest             | Justicia gendarussa   | Acanthaceae     | cough                              |
| 8   | Besi sasakiampilet/gandarusa    | Bischofia javanica    | Euphorbiaceae   | Bark, stem                         |
| 9   | Terbangun/bangun-bangun         | Coleus amboinicus     | Lamiaceae       | deep heat, leaf                    |
| 10  | Serai                           | Cymbopogon citratus   | Poaceae         | flatulence, Stem, leaf             |
| 11  | Tunjuk langit                   | Helminthostachys zeylanica, Khortalsia flagellaris Miq | Ophioglossaceae | energy booster, leaf               |
| 12  | Rattan                          | Arecaaceae            | Lamiaceae       | inflammation of the throat, cough, stem |
| 13  | Pupukmulajadi                   | Khortalsia sp         | Arecaaceae      | stomach, leaf                      |
| 14  | Lempuyang                       | Uncaria sp            | Rubiaceae       | Diabetes, infection, Leaf, rhizome |
| 15  | Kunyit                          | Curcuma longa         | Zingiberaceae   | stomach, Leaf, rhizome             |
| 16  | Lancing                         | Solanum verbasciolium | Solanaceae      | rheumatism, Leaf, root             |
| 17  | Kencur                          | Kaempferia galanga    | Zingiberaceae   | cough, Leaf, rhizome               |
| 18  | Jamur penicilin                 | Ganoderma lucidum, Ganoderma | Hypertension, kidney, all |
| 19  | Kumis kucing                    | Orthosiphon aristatus | Lamiaceae       | prostate, leaf                     |
| 20  | Kapal-kapal/cocorbebek          | Bryophyllum pinnatum  | Crassulaceae    | Cough, asthma, leaf                |
| 21  | Jahe                            | Zingiber officinal     | Zingiberaceae   | inflammation, rhizome              |
| 22  | Senduduk                        | Melastoma malabathricum, Melastomateae | Melastomataceae | stomach, leaf                      |
| 23  | Otok ring-ring                  | Boehmeria nivea. Gaud | Urticaceae      | Traditional Karo medicine, leaf    |
| 24  | Raja Bulung-                    | Piperomea             | Piperaceae      | deep heat, leaf                    |

Note: The above table lists some examples of medicinal plants and their uses. The specific uses may vary depending on the context and the region where the plants are used.
Batu Katak community makes use of plants root, rhizome, stem, bark and leaves all parts of the plants as medicine. The most widely used part is the leaves (75%), as much as 25 % used part are rhizome, root, stem and bark. Medical plant can be found inside forest, outside forest and Land cultivation of medical plant.

The results of the study [6] found 90 types of medicinal plants in which 83.33% used by Dayak Lundayeh community as traditional medicine and the remaining 16.67% were untapped. Plant parts that are utilized include leaves (34.4%), roots (17.8%), all parts of plants (10%), fruits (10%), bark (8.9%), rhizomes (6.7%), stems (6.7%), gums (3.3%), flowers (1.1%) and seeds (1.1%). The medicinal plant habitat utilized by the Dayak Lundayah community consists of pekarangan (41.1%), shrub forest (27.8%), former fields (18.9%) and kerangas forest (12.2%). According to [7] Batak Simalungun ethnic has 239 species (70 families) of medicinal plants. Batak Simalungun used eight species of Lamiaceae as medicinal plants, some of which are dalu (Paraphlomis javanica), silanglang kabungan (Coleus scutellariaoides), simarihur-ihurnias (Pogostemonauricularius), and terbangun (Coleus amboinicus) which are known to be rich in oil essential and the plant can be used to cure digestive disorders and fevers.

4. Conclusions
Found 33 types of medicinal plants utilized by the people of Batu Katak Village which are directly adjacent to the Gunung Leuser National Park. Batu Katak community makes use of plants root, rhizome, stem, bark and leaves all parts of the plants as medicine. The most widely used part is the leaves (75%), as much as 25 % used part are rhizome, root, stem and bark. Medical plant can be found inside forest, outside forest and Land cultivation of medical plant.

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