

The Wealth of Medicinal Plant Species in the Protective Forest Area of Mount Ungaran, Ngesreplalong Village, Kendal Regency

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Abstract: During modernization and the trends of modern medicine, the use of traditional medicines remains relevant, especially in rural and remote areas. This research aims to identify the types, relative abundance, benefits, and utilization of medicinal plants in the Ngesreplalong Village, Kendal Regency. The research methods applied include field surveys and interviews to identify, record, and understand the benefits and utilization of various types of wild medicinal plants. The results of the research show that the Gunung Ungaran Protective Forest area harbors significant diversity in terms of types of medicinal wild plants. In the Gunung Ungaran Protective Forest area, Ngesreplalong Village, Kendal Regency, there are 40 types of medicinal wild plants. The most abundant species include krinyu, pecut kuda, cakar ayam, and bandotan, while the least abundant species are tejo and kina. These plants are utilized as external medicines, such as for topical application or as ingredients in bathwater, as well as internal medicines, which can be consumed orally. This study is expected to serve as a foundation for environmental conservation efforts and the wise utilization of biological resources to support public health.

Keywords: Wild Plants; Traditional Medicine; Kendal Regency; Ungaran Protective Forest.

1. INTRODUCTION

Human life is always closely connected to its environment, and one of the invaluable natural resources is plants (Ahada & Zuhri, 2020; Irwan, 2021). Indonesia, with its biodiversity, is home to various plant species, many of which have been traditionally used for medicinal purposes by local communities (Lukitasari, 2019; Helmina, 2021; Hastuti et al., 2022). These plants, often found in forests and other natural habitats, possess a variety of therapeutic properties that have been passed down through generations (Arofik, 2022; Mahalli, 2023). Amid changing times and modern medical trends, the use of traditional medicines remains

relevant in society, especially in rural and remote areas (Hidayat & Sauki, 2022; Permatasari, 2024).

One area known for its diverse flora is the Gunung Ungaran Protected Forest, located in Ngesreplalong village, Kendal Regency (Nugroho & Ulfah, 2020; Martuti, 2022). The Gunung Ungaran Protective Forest area has great potential as a habitat for various types of wild plants with medicinal benefits that have been traditionally recognized and used by the local community for generations (Mayresta & Fasa, 2022; Anam et al., 2021; Liu et al., 2022).

The wealth of medicinal wild plants in the Gunung Ungaran Protective Forest area is a valuable asset that needs to be preserved. The

importance of conserving these medicinal plants is underscored by the threats of environmental change and excessive exploitation (Luckita et al., 2021). Conservation efforts include a better understanding of plant ecology and habitats, as well as the development of sustainable management practices to ensure the survival of these species (Wraith et al., 2020). Collaboration between universities, local communities, and the government can strengthen the efforts to conserve and manage traditional medicinal plants. This research aims to identify the types, relative abundance, benefits, and utilization of medicinal wild plants in the Gunung Ungaran Protective Forest area, Ngesrebalong Village, Kendal Regency.

2. RESEARCH METHOD

This research method employs field surveys and interviews (Biak, 2020; Sutiani et al., 2020). This method aims to obtain a comprehensive understanding of the diversity of types, abundance, benefits, and utilization of medicinal wild plants in the Gunung Ungaran Protective Forest area, Ngesrebalong Village, Kendal Regency (Santoso, 2023; Alang et al., 2022). Additionally, it aims to identify plant species and understand the local community's knowledge and utilization regarding medicinal wild plants (Putra, 2022; Mbuni et al., 2020; Wanjohi et al., 2020). The field survey is conducted with the aim of identifying the types and abundance of medicinal plants (Nindya, 2022).

In the field, identification of various medicinal wild plant species encountered is conducted, and specimens are collected for further analysis. Additionally, each identified species will be documented, describing the benefits of the plant, and noting information about the plant's habitus.

In addition to field surveys, researchers will also conduct interviews with several members of the Ngesrebalong Village community who possess traditional knowledge about the use of medicinal plants (Zubaidah et al., 2020; Mengistu et al., 2022). The interviews are conducted directly using a pre-prepared interview guide.

The data from field surveys and interviews will be analyzed separately. Field data will be analyzed to identify plant species, relative abundance, and plant habitus. Meanwhile, data from interviews will be analyzed to identify local

knowledge about medicinal plants, their usage methods, and related experiences. The results of the analysis will be combined to provide a holistic understanding of the diversity of medicinal wild plants in the area.

Field surveys and interviews may be conducted repeatedly at regular intervals to ensure the sustainability and validity of the data. Additionally, the results of the surveys and interviews will be validated through comparison with scientific literature. This is done to ensure the accuracy and validity of the information obtained from both methods.

3. RESULTS AND DISCUSSION

From the data collected in the Gunung Ungaran Protective Forest area in Kendal Regency, several types of medicinal wild plants have been identified. The complete list of medicinal wild plant species in the Gunung Ungaran Protective Forest area is presented in Table 1.

Table 1. The Types of Medicinal Wild Plants in the Gunung Ungaran Protective Forest area

Species	Local Name	Morphology
<i>Chromolaena odorata</i>	Krinyu	Shrubs
<i>Urena lobata</i>	Pulutan	Shrubs
<i>Solanum torvum swartz</i>	Cokak	Shrubs
<i>Smalanthus sonchifolius</i>	Daun insulin	Shrubs
<i>Lantana camara</i>	Tembelekan	Shrubs
<i>Glirisidia sepium</i>	Risidi	Shrubs
<i>Sida rhombifolia</i>	Sidogori	Shrubs
<i>Piper aduncum</i>	Suruh-suruhan	Shrubs
<i>Brugmansia suaveolens</i>	Kembang Trompet Putih	Shrubs
<i>Polygala paniculata L</i>	Po o balsem	Shrubs
<i>Rauwolfia serpentina</i>	Pule	Shrubs
<i>Heptapleurum actinophyllum</i>	Walisongo	Shrubs
<i>Euphorbia pulcherrima</i>	Kastuba	Shrubs
<i>Cinnamomum cassia</i>	Tejo	Shrubs
<i>Melastoma</i>	Senggrani	Shrubs
<i>Graptophyllum pictum</i>	Daun ungu	Shrubs
<i>Piper retrofractum</i>	Cabe gunung	Shrubs

Species	Local Name	Morphology
<i>Laphatherum gracile</i>	Rumput bambu	Shrubs
<i>Cnidoscopus aconitifolius</i>	Kates jepang	Shrubs
<i>Sansevieria</i>	Lidah mentua	Shrubs
<i>Stachytarpheta jamaicensis</i>	Aren	Tree
<i>Hibiscus tiliaceus</i>	Waru	Tree
<i>Muntingia calabura</i>	Kresen	Tree
<i>Codiaeum variegatum</i>	Puring pupus	Tree
<i>Bischofia javanica blume</i>	Pendarahan / gintungan	Tree
<i>Atrocarpus elasticus</i>	Bendo	Tree
<i>Cinchona</i>	Kina	Tree
<i>Erythrina variegata</i>	Dadap	Tree
<i>Stachytarpheta jamaicensis</i>	Pecut kuda	Herbaceous
<i>Bidens Pilosa</i>	Ketul	Herbaceous
<i>Ageratum conyzoides</i>	Bandotan	Herbaceous
<i>Eleusine indica L.</i>	Lulangan	Herbaceous
<i>Amomum compactum soland</i>	Kapulaga	Herbaceous
<i>Solanum americanum</i>	Moto pitik	Herbaceous
<i>Homalomena rubescens</i>	Iler – iler	Herbaceous
<i>Clitoria ternatea</i>	Bunga telang	Lianas
<i>Momordica balsamina</i>	Pare hutan	Lianas
<i>Blumea balsmifera</i>	Sembung rambat	Lianas
<i>Dioscorea hispida</i>	Gadung	Lianas
<i>Selaginella</i>	Cakar ayam	Ferns

Based on the table above, in the Gunung Ungaran Protective Forest area, Ngesrepbalong Village, Kendal Regency, 40 types of medicinal wild plants were found, which are utilized by the local community as traditional medicine. These medicinal wild plants have various habits including shrubs, trees, herbs, vines, and ferns.

Table 2. Relative Abundance of Medicinal Wild Plant Species Found in the Gunung Ungaran Protective Forest area.

Species	Local Name	Many Individual	Relative Abundance (%)
<i>Chromolaena odorata</i>	Krinyu	1.827	9,57
<i>Urena lobata</i>	Pulutan	380	1,99
<i>Solanum torvum swartz</i>	Cokak	401	2,10
<i>Smallanthus sonchifolius</i>	Daun insulin	203	1,06
<i>Lantana camara</i>	Tembelekan	1.044	5,47
<i>Glirisdia sepium</i>	Risidi	46	0,24
<i>Sida rhombifolia</i>	Sidogori	825	4,32
<i>Piper aduncum</i>	Suruh-suruhan	358	1,87
<i>Brugmansia suaveolens</i>	Kembang Trompet Putih	370	1,93
<i>Polygala paniculata L</i>	Po o balsem	440	2,30
<i>Rauwolfia serpentina</i>	Pule	215	1,12
<i>Heptapleurum actinophyllum</i>	Walisongo	47	0,24
<i>Euphorbia pulcherrima</i>	Kastuba	15	0,07
<i>Cinnamomum cassia</i>	Tejo	28	0,14
<i>Melastoma Graptophyllum pictum</i>	Senggrani Daun ungu	558	2,92
<i>Piper retrofractum</i>	Cabe gunung	45	0,23
<i>Laphatherum gracile</i>	Rumput bambu	121	0,63
<i>Cnidoscopus aconitifolius</i>	Kates jepang	312	1,63
<i>Sansevieria</i>	Lidah mentua	44	0,23
<i>Stachytarpheta jamaicensis</i>	Aren	131	0,68
<i>Hibiscus tiliaceus</i>	Waru	351	1,84
<i>Muntingia calabura</i>	Kresen	376	1,97
<i>Codiaeum variegatum</i>	Puring pupus	81	0,42
		216	1,13

Species	Local Name	Many Individual	Relative Abundance (%)
<i>Bischofia javanica blume</i>	Pendarahan / gintungan	58	0,30
<i>Atrocarpus elasticus</i>	Bendo	47	0,24
<i>Cinchona</i>	Kina	36	0,18
<i>Erythrina variegata</i>	Dadap	192	1,00
<i>Stachytarpheta jamaicensis</i>	Pecut kuda	1.581	8,28
<i>Bidens Pilosa</i>	Ketul	1.089	5,70
<i>Ageratum conyzoides</i>	Bandotan	1.698	8,90
<i>Eleusine indica L.</i>	Lulangan	795	4,16
<i>Amomum compactum soland</i>	Kapulaga	395	2,07
<i>Solanum americanum</i>	Moto pitik	719	3,76
<i>Homalomena rubescens</i>	Iler – iler	183	0,95
<i>Clitoria ternatea</i>	Bunga telang	230	1,20
<i>Momordica balsamina</i>	Pare hutan	636	3,33
<i>Blumea balsmifera</i>	Sembung rambat	1.318	6,91
<i>Dioscorea hispida</i>	Gadung	117	0,61
<i>Selaginella</i>	Cakar ayam	1.553	8,14
Jumlah		19.081	100 %

Based on Table 2, the relative abundance of medicinal wild plants in the Gunung Ungaran Protective Forest area shows that the most abundant species are krinyu, pecut kuda, cakar ayam, and bandotan. The most common plants are tembelekan and ketul, while the least common plants are tejo and kina.

This is because soil and air humidity have a direct impact on the distribution and abundance of wild plants (Nugroho et al., 2015; Kaswinarni et al., 2019; Ilham, 2023). Medicinal plants often

have preferences for certain humidity levels. Additionally, soil pH affects the availability of essential nutrients and minerals for plant growth. (Abdullah & Andreas, 2021; Sahfitri, 2023). Some medicinal plants may prefer slightly acidic soil, while others might favor slightly alkaline soil (Saparinto & Susiana, 2024). Light intensity is also an important factor that affects plant distribution (Nugroho et al., 2018; Kaswinarni et al., 2023). Medicinal plants can vary in their light requirements. Azhar et al., (2021) Some plants may prefer to grow under a dense forest canopy, while others require direct sunlight.

Table 3. The benefits of medicinal wild plants utilized by the community of Ngesrepbalong Village.

Species	Benefit	Utilized Parts	How to Use
<i>Chromolaena odorata</i>	Back pain	Leaf	Boiled to drink
<i>Urena lobata</i>	Eczema, ringworm and itching	Young leaves and stems	Mashed as a smear and boiled as a mixture in water when bathing
<i>Solanum torvum swartz</i>	Venereal diseases, cancer, cysts and eye disease	Fruit and leaves	Cooked and for fresh vegetable s. Boiled as a medicine for sore eyes
<i>Smallanthus sonchifolius</i>	Diabetes	Leaf	Boiled to drink
<i>Lantana camara</i>	Blood purifier and colds or flatulence	Leaf	Boiled to drink and crushed as a dressing
<i>Glyricidia asepium</i>	Itchy	Leaf	Smooth it to spread it

Species	Benefit	Utilized Parts	How to Use	Species	Benefit	Utilized Parts	How to Use
<i>Chromolaena odorata</i>	Back pain	Leaf	Boiled to drink	<i>Chromolaena odorata</i>	Back pain	Leaf	Boiled to drink
<i>Sida rhombifolia</i>	Gout, rheumatism, toothache, anti-sting	Leaf, Roots, and Flower	Boiled Chewed Use it directly to rub	<i>Stachytarpheta jamaicensis</i>	Diabetes, liver, kidney stones, gallstones and urinary stones	Root	Boiled to drink
<i>Piper aduncum</i>	Gout	Leaf	Boiled to drink	<i>Hibiscus tiliaceus</i>	Fracture	Bark	Used directly as a support for broken bones
<i>Brugmansia suaveolens</i>	Sedative	Flower	Boiled to drink	<i>Muntingia calabura</i>	Diabetes	Leaf	Boiled to drink
<i>Polygala paniculata L</i>	Cough	Leaf	Puree for dressing	<i>Codiaeum variegatum</i>	Anti cancer	Leaf	Boiled to drink
<i>Rauvolfia serpentina</i>	Rheumatic pain	Bark and roots	Boiled to drink	<i>Bischofia javanica blume</i>	Bleeding	Leaf	Boiled to drink
<i>Heptapleurum actinophyllum</i>	Breast milk booster	Leaf	Puree for dressing	<i>Atrocarpus elasticus</i>	Diabetes	Leaf	Boiled to drink
<i>Euphorbia pulcherrima</i>	Facilitating breast milk and	Green leaves and	Boiled to drink. Used straight away	<i>Cinchona</i>	Malaria	Bark	Boiled to drink
<i>Cinnamomum cassia</i>	Wound Insect repellent	Sap Tree	Burned	<i>Erythrina variegata</i>	Reduces fever	Leaf	Sticked as a compress
<i>Melastoma</i>	Wounds and kidney	Leaf	Puree for dressing Boiled to drink	<i>Stachytarpheta jamaicensis</i>	Colds / bloating, facilitating menstruation	Leaf	Boiled to drink
<i>Graptophyllum pictum</i>	Hemorrhoids	Leaf	Boiled to drink	<i>Biden's Pilosa</i>	Have a cold	Leaf	Boiled to drink
<i>Piper retrofractum</i>	Have a cold	Fruit	Boiled to drink	<i>Ageratum conyzoides</i>	Have a cold	Leaf	Boiled to drink
<i>Laphathegracile</i>	Fracture	Leaf	Pounded for dressing	<i>Eleusine indica L.</i>	Typhus	One whole plant	Boiled to drink
<i>Cnidoscopus aconitifolius</i>	Gout and rheumatic pain	Leaf	Boiled to drink	<i>Amomum compactum soland</i>	Aromatic	Fruit	Boiled as aromatherapy
<i>Sansevieria</i>	Anti-radiation	Tree	Planted inside / outside the house	<i>Solanum americanum</i>	Dehydration	Fruit	Use it straight away to eat

Species	Benefit	Utilized Parts	How to Use
<i>Chromolaena odorata</i>	Back pain	Leaf	Boiled to drink
<i>Homalomena rubescens</i>	Hemorrhoids	Leaf	Boiled to drink
<i>Clitoria ternatea</i>	Healthy drink	Flower	Dried as tea
<i>Momordica balsamina</i>	Hypertension and cholesterol	Leaves and fruit	Boiled to drink
<i>Blumea balsmifera</i>	Cancer	Leaf	Boiled to drink
<i>Dioscorea hispida</i>	Antivenom	Bulbs	Smoothed
<i>Selaginella</i>	Anti-swelling	Leaf	Puree as a dressing

Based on interviews with informants who use medicinal wild plants, the most used plants are for treating muscle pain, colds, and diabetes, as these are common ailments among the residents of Ngesrebalong Village. These plants can be used as external medicines, which are not consumed, and internal medicines, which can be ingested. For instance, pulutan is used externally, such as by applying it topically or by boiling its water for use in baths. In contrast, krinyu, cokak, and insulin leaves are used internally and can be consumed as drinks. The most used parts of these plants are the leaves, which can be boiled, ground, or used directly.

4. CONCLUSION

In the Gunung Ungaran Protective Forest area, Ngesrebalong Village, Kendal Regency, 40 types of medicinal wild plants have been found. The most abundant medicinal plants are krinyu, pecut kuda, cakar ayam, and bandotan. The least abundant plants are tejo and kina. These plants are used as external medicines, which are not consumed, and internal medicines, which can be ingested.

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