



Utilization of Dicotyledonous Medicinal Plants in The Wailaboha Forest, Central Sumba Regency, as A Learning Resource in The Form of an Encyclopedia

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ABSTRACT

This study aimed to find out how dicotyledonous medicinal plants were used in the Wailaboha Forest, Central Sumba Regency, and to use the research findings as a learning resource in the form of an encyclopedia. The descriptive quantitative technique was utilized. The subjects of this study were all dicotyledonous plants identified in the Hutan Wailaboha Kecamatan Umbu Ratu Nggay region. The samples in this study were dicotyledonous medicinal plants collected utilizing purposive sampling techniques at each research location. The double plot approach and observation plots were utilized to collect data in this investigation. This study's data analysis techniques were Relative Density, Relative Frequency, Significance Index, and Shannon-Wiener Diversity Index. At the same time, the validation team, including the head of MGMP and biology teachers in Central Sumba, assessed learning resources. The encyclopedia validation test yielded 98% for validator I, 89% for validator II, and 75% for validator III. This value suggests that the encyclopedia is usable and can help with learning.

Pemanfaatan Tumbuhan Obat Dikotil Di Hutan Wailaboha Kabupaten Sumba Tengah Sebagai Sumber Belajar Dalam Bentuk Ensiklopedia

ABSTRAK: Tujuan penelitian ini yaitu untuk mengetahui pemanfaatan tumbuhan obat dikotil di Hutan Wailaboha Kabupaten Sumba Tengah dan menjadikan hasil penelitian sebagai sumber belajar dalam bentuk Ensiklopedia. Metode yang digunakan adalah metode deskriptif kuantitatif. Subyek penelitian ini terdiri dari semua jenis tumbuhan dikotil yang terdapat dikawasan Hutan Wailaboha Kecamatan Umbu Ratu Nggay . Sampel dalam penelitian ini terdiri dari tumbuhan obat dikotil yang terdapat di setiap stasiun penelitian dengan menggunakan teknik purpose sampling. Teknik pengumpulan data dalam penelitian ini menggunakan metode petak ganda dan plot pengamatan. Teknik analisis data yang dilakukan dalam penelitian ini menggunakan Relative Density, Relative Frequency, Significance Index, dan Shannon-Wiener Diversity Index sedangkan penilaian sumber belajar dilakukan oleh tim validasi yaitu ketua MGMP dan guru-guru biologi di Sumba Tengah. Hasil uji validasi ensiklopedia oleh validator I yaitu 98%, validator II sebesar 89%, dan validator III sebesar 78,5%. Nilai tersebut menunjukkan bahwa ensiklopedia layak digunakan dan dapat menunjang proses pembelajaran.

INTRODUCTION

Indonesia is a tropical archipelago country located between the continents of Asia and Australia, as well as between the Indian Ocean and the Pacific Ocean, consisting of approximately 17,500 islands with a coastline length of approximately 95,181 km and an area of approximately 9 million km², comprising 2 million km² of land and 7 million km² of the sea. Indonesia covers only around 1.3% of the earth's land area, but it possesses a high level of biological diversity. Regarding flora, Indonesia is the seventh largest country, with 25% of the world's blooming plant species and 40% endemic or indigenous to Indonesia (Jadid et al., 2020). Indonesia has huge tropical forests endowed with natural wealth in the form of vast forest resources, in which all possibilities exist. This possibility manifests itself in biological natural resources, including food and medicine (Cahyaningsih et al., 2022).

Thirty thousand plant species are utilized as medicinal herbs, but only approximately 100 of them have been examined, and their benefits are known (Nahdi & Kurniawan, 2019). Three thousand five hundred varieties of dicotyledonous plants have been designated therapeutic plants, some of which only grow in specific regions (native plants). They can be used as internal medication throughout the archipelago, regardless of how many are employed to cure ailments (Susandarini et al., 2021). Medicinal plants can treat or prevent a wide range of ailments. Making your treatment is an option (Nizar et al., 2017). Herbal medicine can be prepared by boiling and tapping (squeezing) the medicine made from the ingredients, which can then be consumed, rubbed, or washed with water on the affected area of the body (Sepriani et al., 2020). Medicinal plants can be found in various species and locations worldwide, and they are frequently found in bushes (Tenriawaru, 2022). As a result, woods have a tight association with humanity; forests can give medicinal plants

for humans to cure numerous diseases. Furthermore, woods provide a variety of additional needs, such as plants and animals, that humans can use (Niman, 2019).

Wailaboha Forest is one of the forests in Umbu Langang Village, District Umbu Ratu Nggay Barat. Umbu Langang Village has three forest areas: Tanadaru, Patama Wai, and Wailaboha (Nganji & Simanjuntak, 2018). The Wailaboha forest is the most sought-after woodland by the community for harvesting dicotyledonous medicinal plants. The community uses these plants to take advantage of the natural environment by employing therapeutic plants from plants to combat health problems that still rely on inherited knowledge of medicinal plants (Herawan et al., 2013). The people of Umbu Langang Village rely on forest resources for their everyday needs, such as medicinal herbs to treat ailments. Noni, also known as Kobu, is a medicinal plant extensively ingested and used by the community (*Morinda citrifolia* L.). The Umbu Langang Village residents' settlement is surrounded by a huge expanse of forest, which is a significant asset for the community, one of which is obtaining herbal remedies from the forest.

According to the findings of interviews with the residents of Umbu Langang Village, the local population still heavily relies on herbal medicine to treat various disorders. However, community activities such as opening new land, forest fires, tree cutting, and overharvesting of medicinal plants can all undermine the establishment and sustainability of these plants. The environmental factors of dicot medicinal plants will have an impact on decreasing the population of these plants as a result of these community activities (Komalasari et al., 2020); however, there are still many people who are not wise in protecting and managing forests, which can damage biological resources (O'Donoghue, 2020);(Elfrida et al., 2021).

The usage of dicot plants in education can be utilized as a source of teaching

materials for Kingdom Plantae, which apply to tenth-grade senior high school students' basic competence 3.8, which classifies plants into ranges based on their general characteristics and their role in life. However, there are also barriers in practice, such as a shortage of learning tools and teachers primarily using textbooks to impart general concepts. According to a questionnaire issued to Waibakul Christian High School in Central Sumba, 68% of the students found the material uninteresting and difficult to understand since Kingdom Plantae needed to supply learning resources to high schools. Furthermore, textbooks only include characteristics and species names, not pictures, so there is no specific explanation. The environment is rarely utilized as a location, so it is a broad notion in the learning process. To educate students. And 70% said encyclopedias were a good learning resource for learning about the world of botany, particularly the dicotyledon class.

Encyclopedias are printed books that are alphabetically arranged and offer a collection of extensive, complete, and easy-to-understand explanations from numerous fields (Huda et al., 2019);(Hielganingsih, 2021);(Nizar et al., 2017). Ekaningtias (2020) believes an encyclopedia is a collection of knowledge or phrases that offer thorough and easy-to-understand explanations of many forms of information, especially regarding certain branches of study, arranged alphabetically. It is published in the form of a book by category. Because the encyclopedia is an enrichment book not directly tied to the current curriculum, its existence can withstand changes in the current syllabus.

METHODS

This study employs a quantitative approach. This study was conducted in the

Wailaboha forest area near Umbu Langang Village in Central Sumba Regency. This study lasted two weeks, from April 6 to April 16, 2022.

The subjects of this study were all dicot plants identified in the Wailaboha Forest area of the Umbu Ratu Nggay District. The dicot medicinal plants found at each research site were sampled using a purposive sampling strategy in this investigation. Collecting samples from various plant phases by sampling data sources from a specific perspective is known as target sampling. One sowing plot and two plots were used to sample medicinal plants with two cotyledons (Kalima, 2021).

The double plot method was employed to collect data in this study. The observation plots were methodically arranged according to dicotyledonous medicinal plants' development rate and growth habits, measuring 10 x 20 m at each station. Temperature, humidity, and soil pH affect dicot medicinal plants (Hakim., 2014).

The data analysis methodologies employed in this study were Relative Density, Relative Frequency, Significance Index, and Shannon-Wiener Diversity Index. At the same time, the validation team, including the MGMP chairperson and biology teachers in Central Sumba, assessed learning resources.

RESULT AND DISCUSSION

Based on the results of research on dicot medicinal plants in the Wailaboha forest, Umbu Langang Village, Central Sumba Regency, 2 classes, 12 orders, 11 families, and 17 species of 273 individual types of dicot medicinal plants with traditional medicinal properties were found at all stations installed in sub-plots can be seen in the table below.

Table 1. Types of Dicot Medicinal Plants Found in the Wailaboha Forest, Central Sumba Regency

No	Local Name	Scientific Name	Family	Number of Individual	Image
1	Kobu	<i>Morinda citrifolia</i> L.	Rubiaceae	15	
2	Kutta Kalara	<i>Piper crocatum</i>	Piperaceae	12	
3	Kalou jawa	<i>Carica papaya</i> L.	Piperaceae	16	
4	Padamu rara	<i>Jatropha gossypifolia</i> L.	Euphorbiaceae	16	
5	Gawa	<i>Psidium quajawa</i> L.	Myrtaceae	17	
6	Kawilu	<i>Aleurites moluccana</i> L.	Euphorbiaceae	44	

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No	Local Name	Scientific Name	Family	Number of Individual	Image
7	Taikabala	<i>Cromolaena odorata</i> L.	Asteraceae	18	
8	Airaba	<i>Lantana camara</i> L.	Verbenaceae	17	
9	Kutta	<i>Piper batlle</i> L.	Piperaceae	12	
10	Toru kohu	<i>Solanum torvum</i>	Phyllanthaceae	12	
11	Wala wunga	<i>Euphorbia hirta</i> L.	Euphorbiaceae	14	
12	Kapotar	<i>Urena Labota</i> L.	Malvaceae	11	
13	Kapoluh	<i>Helicteres isonaa</i> L.	Malvaceae	13	

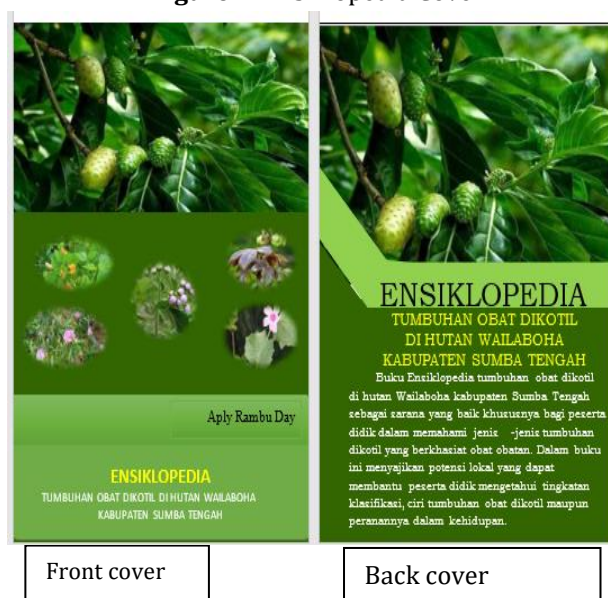
No	Local Name	Scientific Name	Family	Number of Individual	Image
14	Joluk	<i>Ficus hispida</i>	Moraceae	12	
15	Rukabanga	<i>Ageratum conyzoides</i>	Asteraceae	19	
16	Lagoru Padang	<i>Melastoma candidum</i>	Melastoma	16	
17	Labung	<i>Eugenia polyanthum</i>	Myrtaceae	9	
Total				273	

According to table 1, the most common type of dicot medicinal plant identified in the Wailaboha forest, Central Sumba Regency, is *Aleurites moluccana* L., which has 44 individuals. *Eugenia polyanthum* is one of the few dicot medicinal plants discovered, with only nine individuals.

DISCUSSION

Encyclopedias are reference books used in schools and by general readers to learn more about a topic (García-Pérez et al., 2020);(Susandarini et al., 2021). This encyclopedia book's preparation is tailored to the demands of high school pupils and the 2013 curriculum. The validation test assesses the encyclopedia's content's compatibility with school-age students' needs.

Figure 1. Ensiklopedia Cover



The appearance of the book, the attractiveness of the cover, the suitability of the title with the material/content of the book, the suitability of colors, writing, and pictures, the suitability of the curriculum, the contents of the book according to achievement (GPA) and not contradicting Pancasila, the contents of the book according to the class kingdom Plantae learning material Dicotyledonae, presentation of the material are the elements evaluated. There is an opening section and a table of topics, the material is presented in a cohesive, clear, and easy-to-understand manner, the book's contents entice readers to learn more, and there is a closing section (glossary list) that is relevant and valid.

The results of the validation test by validator I are shown in Table 2, with a percentage of 98%. The achieved rating shows that the encyclopedia is usable and can help learning activities. Validator I recommends that this book be reproduced and distributed to schools so that instructors can use it as a reference when teaching. It is also desired that an inventory of other medicinal plants will be carried out by visiting other forest places in Central Sumba. Because this encyclopedia of medicinal plants is very good as a reference for students in learning, the findings of the encyclopedia research from validator II amounted to 89% in the proper category.

Suggestions from Validator II should include the name of the Indonesian language because not all pupils understand the regional language. After all, Central Sumba Regency has several different local languages. In the appropriate category, the validator test III value was 78.5%. This book is enough for comprehending the material/sub-material in the Dicotyledoneae class. According to validator III of this encyclopedia's instructions, it is preferable to add Indonesian first and then write it in the local language because the world of education employs Indonesian to help with teaching and learning activities.

Table 2. Validation Results

No	Validators	%
1.	Suriati, S. Pd, a biology subject teacher at SMAN Umbu Ratu Nggay Barat.	98 %
2.	James Edyson Meruk, S. Pd, a biology subject teacher at SMAN I Waibakul.	89%
3.	Ice Trisnawati R. J. Pedi, S. Pd, a biology subject teacher at SMA Kristen Waibakul	78,5%

Audriansyah et al., (2022) and (Haka & Suhanda, 2018) claim that media serves two purposes: a tool and a learning resource. The Walaiboha woodland in Central Sumba Regency's Encyclopedia of Dicotyledon Medicinal Plants might enhance environmental depth. As a learning medium, the Encyclopedia of Dicot Medicinal Plants can be used as a supplement for students, in conjunction with other learning aids such as student worksheets, which can promote student actions in discussions and stimulate students' deep thinking abilities (Syafuruddin et al., 2022). This encyclopedia can also be used with learning methods or strategies appropriate for achieving Basic Competence in Plantae material. The method or strategy used is related to activities that utilize the environment by carrying out activities directly (observation) in the environment so that students can make direct observations using their senses and the scientific process can run smoothly (Ammar et al., 2021);(Navia et al., 2021);(Nahdi & Kurniawan, 2019).

CONCLUSION AND SUGGESTION

The following conclusions are based on the findings of a study on the use of dicot medical plants in the Wailaboha Forest and the use of a diversity of dicot medicinal plants as a learning resource in encyclopedia form: Validator I's encyclopedia validation test scores were 98%, Validator II's were 89%, and Validator III's were 78.5%. Taxonomic encyclopedia of dicot medicinal plants to make dicot medicinal plants practicable. Very ideal for use and can help with teaching and learning. In terms of

research suggestions, other researchers can conduct additional research so that additional research can be developed again through additional research on the use of dicot medicinal plants in the Wailaboha Forest Area in the form of encyclopedia learning resources by examining several other ecological indices that have not been examined, namely the Simpson Dominance Index (C), environmental factors such as light intensity, and so on.

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