
Making Dry Herbarium Preservation To Support Biodiversity Lessons In Schools

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Abstract

Herbariums are plant specimens that have been preserved and can be used as learning media. There are two types of herbarium, namely dry herbarium and wet herbarium. The most common type of dry herbarium used as a learning medium. Dried herbaria are plant parts that have been dried and arranged on paper and then accompanied by information regarding the specimen. Making herbarium preserves is one of the main sources for studying biodiversity in the surrounding environment. So that students can feel ownership, understand and protect the biodiversity in their area, learning about biodiversity conservation will not be enough just to study conservation theories in the classroom. Students need to be invited to get to know biodiversity in its natural habitat, therefore teachers need to have knowledge and skills on how to collect and preserve organisms so they can be used as learning material in the laboratory. The method used in this service activity is training and performance in the form of practice. Training materials for the process of making dry herbarium include collection techniques, drying/pressing, applying sublimate, gluing to herbarium paper and labeling, equating it with living plants that are known by name in the school environment. The activity of delivering material for making a herbarium was carried out classically, all participants (students) followed the material presented by means of lectures, discussions and questions and answers. After completing the material delivery activity, a practical demonstration of making a dry herbarium was carried out using plants found in the school environment. For practical activities, participants were divided into groups of 3-5 members each. The students continued with the practice of making herbarium with the activity of gluing dried specimens to herbarium paper and labeling them. When gluing specimens, assistance is carried out intensively by researchers to provide guidance to students so that the process is carried out properly and correctly. Students gain a lot of knowledge about the principles of gluing specimens whose patterns are adapted to each student's creativity. Each group presented their own herbarium in front of the class which the other groups responded to.

Keywords: Dry Herbarium, Biodiversity, School Environment, Labeling

INTRODUCTION

Environment-based learning includes the use of the environment such as the observation of the organism object directly in the environment or through the preservation and preparation of the organism object as a learning material is sufficient to support the achievement of competence and optimal learning goals, especially in the field of biology. One form of Learning media based on the environment is the preservation of plant techniques or so-called herbarium (Murni et al., 2015). Dried Herbarium is plant material that has been preserved by drying or also called dried herbarium specimens. According to Hafidal, et al (2020), herbarium is a plant specimen that has been preserved and can be used as a learning medium. Herbarium has two types, namely dry herbarium and wet herbarium. The most common type of dry herbarium is used as a learning medium. Dry Herbarium is a part of the

plant that has been dried and arranged on paper and then equipped with information related to the specimen. The high level of biodiversity that Indonesia has should be able to make ecosystems that are close to life such as rice fields, gardens and fields as laboratories for studying biodiversity from an early age. However, the introduction of biodiversity in the environment around the residence/school is still very low. One obvious example is that school textbooks often use examples of animals from foreign countries, such as ostriches, polar bears, and giraffes. Only a small part of them uses examples of living beings from the surrounding environment. This is thought to be one of the causes of people's indifference to the importance of the benefits of surrounding biodiversity. Environment-based learning by utilizing herbarium specimens from the school environment will greatly help students' understanding of Biology, in addition students will be interested and focused in learning (Murni et al., 2015). Through herbarium observation, students can analyze the morphological variations of plants discussed in the lesson so that the description of a plant taxon can be determined easily and therefore must abandon the way of memorization that has been difficult and saturating.

Making herbarium preservation is one of the main sources in studying biological diversity in the surrounding environment. In order for students to feel they have, understand and maintain biodiversity in their area, then learning about biodiversity conservation will not be enough just to learn conservation theories in the classroom. Students need to be invited to know the biodiversity in its natural habitat, therefore teachers need to have knowledge and skills on how to collect and preserve organisms so that they can be used as learning materials in the laboratory. Each type of organism has different characteristics, so there are variations in the way of collection, fixation methods and preservation of each organism based on its characteristics. Therefore, community service is important so that students have skills in making herbarium preservation and laboratory management so that learning about biodiversity in the classroom becomes more real.

RESEARCH METHODS

The method used in this service activity is training and performance in the form of practice. Training materials for the process of making a dry herbarium are collection techniques, drying/pressing, sublimating, gluing herbarium paper and labeling, equating to living plants that are known by name in the school environment. The presentation of the material for making the herbarium was carried out classically, all participants (students) followed the material presented by means of lectures, discussions and questions and answers. After the completion of the material delivery activities, the next practical performance of making dry herbarium using plants in the school environment. For practical activities, participants are divided into groups, each with 3-5 members.

RESULTS AND DISCUSSION

Devices or learning aids learning that resulted from this training activity is a dry herbarium for the introduction of the types of plants in the school environment. The presence of herbarium specimens in schools is very helpful for students to analyze the nature and characteristics of plants in determining the level of biodiversity of species by direct observation of the object of study in the laboratory or in the classroom. According to Syamsiah, et al (2020), herbarium is a dried plant that is made through several stages of the process, namely preservation, pressed and pasted on manila cardboard or the like and equipped with labels/etiquette that contain detailed data from the plant. Herbarium is very important to use as lesson material for learners and teachers also used as a medium/tool in the learning process. The process of making dry herbarium which includes collection activities, drying and pressing, sublimating, gluing on herbarium paper, and labeling responded well by students. At the time of the practice of collecting plants in the field (school environment) the students got the experience of plant part retrieval techniques that are good for herbarium specimens, hanging labels, and procedures for filling out notes about the character of plants that need to be known in a fresh state and field data information, both specimens for taxonomic and ecological studies (specimen vouchers). The students in groups are very active in the practice of pressing specimens from the collection that are ready to be dried and how to preserve specimens that will be pressed in the next few days or months by inserting techniques in plastic bags with alcohol preservatives as described anonymous (2007). By the time the researcher demonstrated how to dry the specimen and sublimate the gift all the students diligently followed the explanation, and many questions arose. The practice of making herbarium was continued by gluing dried specimens on herbarium paper and labeling. At the time of gluing the specimen, intensive assistance was carried out by the researcher to provide guidance to students so that the process was carried out properly and correctly. Students get a lot of knowledge of the principle of gluing specimens whose patterns are adjusted to the creativity of each student. Each group presented their own homemade herbarium in front of the class to which the other group responded.



Figure 1. The Result Of Making A Dry Herbarium

CONCLUSION

Based on the analysis of the results during the training activities and observations during mentoring, it can be concluded: (1) training on the practice of making dry herbarium, responded well by students, and is perceived as knowledge and skills are very valuable in supporting learning activities on biodiversity - based school environment; (2) the high interest and motivation of the trainee students greatly supports the transfer of knowledge and skills from researchers to trainees, so that the training materials provided can be absorbed by all and the resulting learning products meet scientific criteria; (3) training products in the form of dry herbarium in the school environment can be used as a learning tool that supports the learning objectives of biodiversity in schools.

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