

IDENTIFYING BAMBUSA SP. AT TNGGP RESORT PTN SELABINTANA SUKABUMI THROUGH MINI RESEARCH ACTIVITIES USING PROJECT BASED LEARNING

Indri Yani ^{a*)}, Suci Pratiwi ^{a)}, Syarifah Zahra ^{a)}, Feizy Fachrunisa Naser ^{a)}, Hesti Nuraeni ^{a)}, Bunda Cintawati ^{a)}

^{a)} Universitas Pakuan, Bogor, Indonesia

^{*)}e-mail korespondensi: indri@unpak.ac.id

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Abstrak.

Bambu merupakan tumbuhan berbatang jelas, jenis batangnya rumput (calmus), yaitu batang yang tidak keras, mempunyai ruas-ruas nyata, sering kali berongga. Sifat permukaannya berambut (laevis). Arah tumbuhnya tegak lurus (erectus). Pola percabangannya tidak ada, karena bambu merupakan monokotil. Mempunyai buku-buku (nodus) dan ruas-ruas (internodus). Penampang melintang batang berbentuk bulat (teres) berongga atau kosong (Yutam Soleh, 2013). Penelitian ini bertujuan untuk mengidentifikasi Bambusa sp. di Taman Nasional Gunung Gede Pangrango (TNGGP) Resort PTN Selabintana–Seksi PTN Wilayah III– Bidang PTN Wilayah II Sukabumi melalui kegiatan mini riset berbasis PjBL. Metode yang digunakan adalah metode deskriptif eksploratif yang menggambarkan tentang identifikasi Bambusa sp., dan metode jelajah yaitu menjelajahi TNGGP Resort PTN Selabintana–Seksi PTN Wilayah III–Bidang PTN Wilayah II Sukabumi yang terdapat jenis Bambusa sp. Hasil penelitian menunjukkan spesies Bambusa sp. yang ditemukan di TNGGP Resort PTN Selabintana– Seksi PTN Wilayah III–Bidang PTN Wilayah III Sukabumi adalah sebanyak 5 spesies yaitu Gigantochloa pseudoarundinacea; Dendrocalamus asper; Dinochloa scandes; Bambusa blumeana; Schizostachyum brachycladum.

Kata Kunci: Bambusa sp.; Identifikasi; TNGGP Resort PTN Selabintana; Project Based Learning

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Abstract. Bamboo is a clear-trunked plant with grass stem type (calamus), which is a stem that is not hard, has real segments, and often hollow. The nature of the surface of the stem is hairy (laevis). The direction of growth is perpendicular (erectus). Bamboo has no branching pattern because it is a monocot. It has books (nodes) and segments (internodes). The cross section of the stem is round (teres) hollow or empty as it is stated by (Yutam Soleh 2013). This study aims to identify Bambusa sp. at Resort PTN Selabintana – Section PTN Region III – Division PTN Region II Sukabumi Gunung Gede Pangrango National Park. The method used is a descriptive exploratory method that describes the identification of Bambusa sp., and a roaming method that is exploring the Resort PTN Selabintana - PTN Section Region III - PTN Division Region II Sukabumi Gunung Gede Pangrango National Park which contains Bambusa sp. The results showed that the species Bambusa sp. found at Resort PTN Selabintana – PTN Section Region III – PTN Division Region III Sukabumi Gunung Gede Pangrango National Park were as many as 5 species, namely Gigantochloa pseudoarundinacea; Dendrocalamus asper; Dinochloa scandes; Bambusa blumeana; Schizostachyum brachycladum.

Keywords: Bambusa sp.; Identification; Resort PTN Selabintana; Project Based Learning

I. PENDAHULUAN

Bamboo is not a foreign plant for our society, especially rural communities. Bamboo has long been used as part of people's lives, both for household appliances, house building materials, and even as food which is usually used as vegetables. However, along with the progress of the times, it seems that bamboo is starting to be abandoned because people are more interested in using wood, plastic, iron and cement than bamboo. However, bamboo is still in demand by many people for various daily needs such as furniture, household utensils and cattle pens (Markus, 2009).

In the world, there are more than 1,250 species of bamboo from 75 genera. Of these, in Indonesia, there are 39 species of bamboo from 8 genera. Bamboo belongs to the Gramineae family (grasses are also called Giant Grass which

grows gradually from shoots to young stems and matures at the age of 4-5 years (Dana Atmaja, 2009). Generally found in open places and the area is free from stagnant water. This plant lives in clumps with stems that are segmented and stepped. On the internodes grow branches that are smaller than the reed itself. In these segments roots grow so that on bamboo it is possible to reproduce plants from pieces of the segment, in addition to the clump shoots (Firdaus, 2008).

This bamboo identification was conducted in Gunung Gede Pangrango National Park (TNGGP) resort of PTN Selabintana Sukabumi. Gunung Gede Pangrango National Park (TNGGP) is a national park located in West Java Province. Established in 1980, this national park is one of the oldest in Indonesia. Gunung Gede Pangrango National Park was primarily established to protect and conserve the beautiful mountainous ecosystems and flora in West Java.

The site covers an area of 24,270.80 hectares, its territory mainly includes the two peaks of Mount Gede and Pangrango and the surrounding mountain forest. The management of the TNGGP area is under the Directorate General of Natural Resources and Ecosystem Conservation, Ministry of Environment and Forestry. The responsibility for this management rests with the TNGGP Center, which is led by a head of the hall. The TNGGP Central Office is located in Cibodas, and in its operational management it is divided into 3 (three) National Park Management Divisions (BPTN), namely the Region I Cianjur PTN Division, the II Sukabumi State PTN Division, and the Bogor Regional III PTN Division. Furthermore, the three PTN Divisions are divided into 6 National Park Management Sections (SPTN), and further divided into 15 National Park Management Resorts (RPTN) with the task and function of protecting and securing the entire TNGP area in realizing the preservation of natural resources towards sustainable forest use.

As for the use of the PjBL learning model in the research Identifying Bambusa sp. At TNGGP Resort PTN Selabintana Sukabumi through mini research activities using Project Based Learning (PjBL) to improve students ability to research various bamboo species in Selabintana. In addition, the advantage of applying the PjBL learning model is that if students have obtained data or research results, they can make learning media such as chapter books or practical materials for making biomass power generators.

II. RESEARCH METHODOLOGY

The material used in this research is Bambusa sp. which is in the Resort PTN Selabintana–Section PTN Region III–Section PTN Region II Sukabumi Gunung Gede Pangrango National Park. The tools used in this research are soil tester, smartphone camera, and stationery.

The method used in this study is a descriptive exploratory method that describes the identification of Bambusa sp., and a roaming method that is exploring the Resort PTN Selabintana–Section PTN Region III–Section PTN Region II Sukabumi Gunung Gede Pangrango National Park which contains Bambusa sp. Data collection is carried out in two ways, namely primary data collection and secondary data collection. Primary data is data obtained in the field by recording the type of Bambusa sp. and identified. In addition, environmental factors recorded include the location of the presence of Bambusa sp., temperature, soil moisture, light intensity and soil pH. While secondary data is data taken to support primary data from other relevant sources.

The data collection technique in this study is a purposive sampling technique, namely exploring the Resort PTN Selabintana – Section PTN Region III – Division PTN Region II Sukabumi Gunung Gede Pangrango National Park which contained Bambusa sp. Data collection techniques in this study were carried out by direct identification in the field with the help of identification key books and existing literature. Each species found is documented to increase the accuracy in the identification of Bambusa sp.

The test instruments and observation instruments used can be seen on the attachment sheet. In addition, a good

instrument test must meet two important requirements, namely validity and reliability. Validity is a rule that shows level of validity and error of the instrument. A test is said to be valid if the test measures what it is intended to measure. The steps for conducting this research are to determine the track we will choose using the roaming method, measuring soil pH, temperature, and moisture. Then identify the type of bamboo found.

III. RESULT AND DISCUSSION

Environmental Parameters at Resort PTN Selabintana – Section PTN Region III – Division PTN Region III Sukabumi Gunung Gede Pangrango National Park.

Table 1. Measurement of Environmental Conditions at the Four Observed Locations

Environmental Parameter	Measurement on each location			
	1	2	3	Hiking Track
Temperature (°C)	18°C	18°C	18°C	18°C
Soil Humidity	Humid	Humid	Humid	Humid
Light Intensity	Overcast	Overcast	Overcast	Overcast
Soil pH	7.0	7.0	7.0	7.0

The following is a description of the plant Bambusa sp. which includes classification, location where the plants are found and potential use.

A. *Gigantochloa pseudoarundinacea*

Gombong bamboo (*Gigantochloa pseudoarundinacea*) is a type of large to medium sized bamboo. This bamboo has a yellowish-green reed with yellow stripes parallel to the reed. The clumps are not too close. In Indonesia, this bamboo is planted by people, it does not grow wild. This bamboo is used as building material, water pipes, making household items such as furniture, halls, and other tools, including wickerwork and baskets; as well as to make traditional musical instruments. In industry, the reed is used as raw material for chopsticks and toothpicks. Bamboo shoots of a certain form are often cooked as vegetables.

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Figure 1. *Gigantochloa pseudoarundinacea*

Kingdom : Plantae
Division : Magnoliophyta
Class : Liliopsida
Order : Poales
Family : Poaceae
Genus : Gigantochloa
Species : Gigantochloa pseudoarundinacea

B. *Dendrocalamus asper*

Betung bamboo (*Dendrocalamus asper*) is a type of large and thick-haired bamboo in Indonesia with abundant potential. Betung bamboo (*Dendrocalamus asper*) is also a type of bamboo that is sympodial (clumped). *Dendrocalamus asper* grows scattered throughout the island of Java and grows well in moist and wet tropical alluvial soils, but can also grow in dry areas in the lowlands and highlands (Widjaja, 2001).

In its utilization, *Dendrocalamus asper* is used by many people for construction and bridge because of its sturdy stems and can grow large. In addition, betung bamboo can also be used as furniture material, including: tables, chairs, beds, dining tables, wardrobes, and decorative cabinets (Batubara, 2002). Location found: Location 1. Picture of *Dendrocalamus asper* can be seen in the picture 2 in the following.



Figure 2. *Dendrocalamus asper*

Kingdom : Plantae
Division : Magnoliophyta
Class : Liliopsida
Order : Poales
Family : Poaceae
Genus : Dendrocalamus
Species : Dendrocalamus asper

C. *Dinochloa scandens*

Cangkoreh bamboo (*Dinochloa scandens*) is a type of bamboo that propagates. The reed is often not hollow in the middle, dark green in color, the books are swollen and brown from fallen fronds. The reed is very strong and tenacious, and is often used for plaiting or woven ropes of other materials. The reeds often contain water, which is often used as eye drops or ringworm. Location found: Location 1. Location found: Location 1. Picture of *Dinochloa scandens* can be seen in the picture 3 in the following.



Figure 3. *Dinochloa scandens*

Kingdom : Plantae
Division : Magnoliophyta
Class : Liliopsida
Order : Poales
Family : Poaceae
Genus : Dinochloa
Species : Dinochloa scandens

D. *Bambusa blumeana*

Aur bamboo (*Bambusa blumeana*) is a type of bamboo that grows in the humid tropics and is also found in dry areas both in the lowlands and in the highlands. Its branches appear 1-2 cm above the ground. Aur bamboo (*Bambusa blumeana*) is a type of bamboo that has been used by residents and has the potential to be developed for the community's economy, both for daily needs, such as handicrafts and the manufacture of household utensils, decorations, water pipes, fishing gear as well as for making furniture that can be sold (Huzaemah et al, 2016). Location found: Location 3. Picture of *Bambusa blumeana* can be seen in the picture 4 in the following.



Figure 4. *Bambusa blumeana*

Kingdom : Plantae
Division : Magnoliophyta
Class : Liliopsida
Order : Poales
Family : Poaceae
Genus : Bambusa
Species : Bambusa blumeana

E. *Schizostachyum brachycladum*

Schizostachyum brachycladum is a bamboo that has the form of a sympodial clump of pachymorphic rhizome type, *Schizostachyum brachycladum* has a reed surface that is not too smooth and dark green in color, its branches are above the book which are clustered equally large, the shape of the midrib is upright and there are 2 pieces on the left and right of the stem, trunk diameter between 5-6.5 cm internode length between 30-65 cm, stem height reaches 20 m, straight rod shape. Bamboo reeds (*Schizostachyum brachycladum*) can be used as furniture materials, including: tables, chairs, beds, dining tables, wardrobes, and decorative cabinets (Batubara, 2002). Location found: Location 1. Picture of *Schizostachyum brachycladum* can be seen in the picture 5 in the following.



Figure 5. *Schizostachyum brachycladum*

Kingdom : Plantae
Division : Magnoliophyta
Class : Liliopsida
Order : Poales
Family : Poaceae
Genus : Schizostachyum
Species : Schizostachyum brachycladum

By using project based learning, the students that done the research pertaining bamboo has invented more species. Because using project based learning, students are able to explore more about what they want to invented and more focused on they research questions in their research. It is also give them motivation to do the research because they can develop their creative thinking. Project based learning model can improve creative thinking skills and student motivation (Fadhil, M., dkk. 2021; Anazifa, R. D., & Djukri, D.,2017; Shin, M. H., 2018)

IV. CONCLUSION

Based on the results of the research that has been done, it can be concluded that the species *Bambusa sp.* found at Resort PTN Selabintana–Section PTN Region III–Section PTN Region II Sukabumi Gunung Gede Pangrango National Park are 5 species, namely *Gigantochloa pseudoarundinacea*; *Dendrocalamus asper*; *Dinochloa scandes*; *Bambusa blumeana*; *Schizostachyum brachycladum*.

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