Original Article

Structure And Reproduction Of Forest Ferns

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Abstract

In the article, the lesson development of the laboratory exercise on the topic "Structure and reproduction of forest vegetation" from the course of plant systematics in the second year of higher educational institutions in the field of biology is given.

Keywords: sporophyte, questions, sporangium, spores, antheridium, archegonium, gametophyte, rhizome, spermatozoa, egg cell, zygote.

Introduction. Lecture classes in higher educational institutions are accompanied by laboratory classes. Laboratory classes are important in consolidating the knowledge gained in theory. Laboratory classes in the botany course are organized in the study of almost every subject.

The main part. Based on the experience gained in laboratory classes for several years, we found it necessary to give a lesson plan for a laboratory session on the topic “structure and reproduction of Forest pheasant” from the course of Plant Systematics.

Educational purpose of the lesson: to explain to students the features of complicating their structure with the adaptation of the centipede plant to the living environment.

The educational purpose of the lesson: to provide students with environmental education, to teach them to protect plants by showing the variety of plants, their belonging to different environmental groups.
The developing goal of the lesson: the development of skills and abilities in the use of laboratory equipment of students.

Equipping the lesson: Moss, pheasant, centipede herbariums, room plant, centipede grown on canvas, centipede leaf, centipede tumor with sporangia, magnifying glass, microscope, ready-made micropreparations, laboratory equipment, tables showing the reproduction and development of Moss pheasant and Centipede (schematic drawings).

Theoretical concept. The centipede belongs to the following systematic group:
Section: Pheasant (pterophyta)
Ancestor (class): Polypodiacimones (Polypodiopsida).
Order (tribe): Polypody (Polypodiales).
Family: Polypodiadoshs (Polypiaccae).
Species: male paparazzi(forest pheasant) - Dryopterus filix mas [1]

In the centipedes, demonic sexual reproduction turns into alternating. Sporafit breed dominates-dominates. Hometaphitis is in the form of a very small tumor. Sporafite has true root stem and leaf-conducting tissues. The leaves are large, located in a spiral around the stem. Young leaves breaking through the soil are twisted, like a Shell, have a tangy brown color. They rise to the surface of the Earth in the third year of slow development. In summer, two rows of sporangian soruses

are formed between the Leaf. The spores in the sporangium are the same. Therefore, centipedes are included in the group of plants with the same spores [2, 3, 4].

The procedure for carrying out the work: before starting the laboratory training, questions and answers are held with students on the topic. After the interview, a laboratory session is performed using the instructions below.

1. Herbariums of Moss pheasant and Centipede plants show signs of similarity and difference by carefully observing the appearance of the centipede grown in a flower pot as a room plant and comparing it to each other. In connection with the release of all three plants on land, explain in which one there was a complication in the structure of the heart.

2. Separate the centipede from the soil in the gultuvak, clean the rhizome from soil particles and measure its height, determine what organs have grown out of it. Determine what kind of reserve substance accumulates in the rhizome, in what part of the substance is formed, why it serves.

3. Pay attention to the color, location or leaf debris that makes the centipede plant grow from which part of the plant its unusually large adult patchy, long-band, shell-like young leaves. Take one leaf and measure the length and width.

4. From the herbarium prepared in the summer of the centipede, learn the spores in it. Carefully observe the back of the leaf using a magnifying glass. Find soriuses that form spores, located in bunches behind the Leaf. Pay attention to their shape, location, color, covered with a heart-shaped peel. Prepare a micropreparation by cutting the soruses crosswise, or study it by observing it from the finished micropreparation. Determine how many sporangey with long thin legs at the tip, from what sleeves it is made.

5. Continue to observe the structure of the sporangia in the lens of the microscope of different sizes. Find long, thin band spores that exfoliate the Soros. Find the sporangia and the spores in it. Show the sporangium the thick-skinned cells located on the surface in the form of a ring and identify them in their function. In order to finally remove the sporangium, take out its excess water, drip a drop of dark glycerin on it and observe it under a microscope. You can see the ring in it twist and open, releasing spores from it.

6. To study the structure of spores, prepare micropreparations or observe from a ready-made micropreparation. To do this, cut off from a wet preparation - the yolks behind the leaf and, having prepared a micro-preparation, observe it under a microscope. Determine what parts it is made of. Pay attention to its branch, color, one cell, as well as multiple cells.

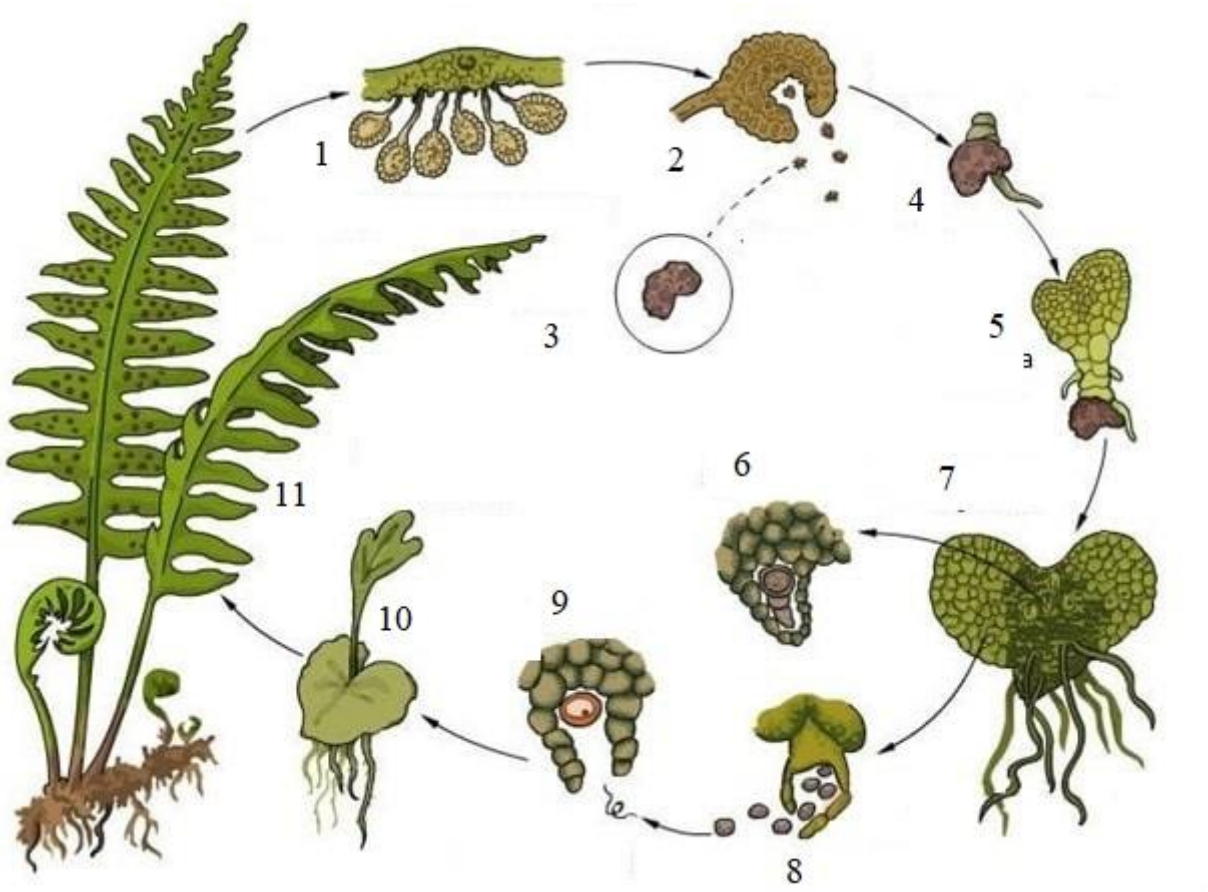
7. Using a schematic picture, in which the reproduction and development of the centipede is reflected, study the asexual reproduction of the plant, the alternation of offspring. Show a growing asexual breed-sporafite plant. Determine what organs are present in it.

8. In the summer, take the sorusi leaf, separated from the growing centipede plant, and observe its back. Pay attention to the location, color and shape of the Soros in it. Study the structure of sporangians, separated from the inside of the soruses. Comment that once the spores have matured, their sporangia will be erupted and spread.

9. Show gametaphite, a rhizoid tumor rich in chlorophyll that has grown spores that have fallen into a damp place. Determine the function of the rhizoid. With gametophyte sexual procreation, the sporaphyte asexual procreation is compared to each other. Determine in which part of the gametaphitis what organs and cells are formed: formed genital organs - archegonium, arteridium: sex cells-egg cell, show sperm from the table, where the development cycle is reflected. Pay attention to the number of egg cells and sperm, what conditions are important in their mutual attachment.

10. Indicate the maturity of the STEM, STEM and leaves of the Bolt and its parts, originating from the fertilized egg cells. Once again observe the schematic picture, in which the reproduction and development of the centipede is reflected. Determine which breed prevails in the generational gallantry in the centipedes.

11. Draw a schematic drawing in which the reproduction and development of the centipedes is reflected. Strictly follow the sequence of the process you are going to do as you draw. Write down the processes going on the plant and the names by numbering the parts of the plant.



Picture 1. Centipede development cycle

Conclusion. When introducing students to their information about plants, it is advisable to use plants that are found in our area, especially when mastering Plant Systematics. Biology it is useful in all respects to familiarize students of the educational direction with the morphology, Systematics and anatomy of plants necessary for their future practical activities. When directing students to the scientific research process, it is important to fully master the structure and function, development and variety of plant organs.

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