Thematic block Systematics of flowering plants 1

Lesson 9. Subclasses Rosidae 2.

The purpose of the lesson: Learn how to make a morphological description of the plants, to study the systematic features of the subclass Rosidae.

Initial level questions

1. Systematic position of the families of the subclass Rosidae.
2. General characteristic of the family Fabáceae.
3. Comparative characterization of subfamilies of the family Fabáceae. Formulas and diagrams of flowers of the family Fabáceae.
4. General characteristic of the family Apiaceae.
5. Comparative characterization of subfamilies of the family Apiaceae. Formulas and diagrams of flowers of the family Apiaceae.

Instructions for the work

Material: Set of herbarium and fixed plant material of the subclass Rosida.

Tables: Acācia dealbāta, Sénna alexandrína, Pisum sativum, Coriándrum sátivum,

Equipment: stereoscope, magnifying glasses, dissecting needles, tweezers, slides, filter paper, distilled water**.**

Methodology of work.

Task 1: Study the main representatives of the Fabáceae **family.**

Using herbarium and fixed material, study the morphology of plants in the family Legumes (using the subfamily Legumes as an example). To study the structure of the flower of the representatives of the legume subfamily. To draw attention to the comparative uniformity of flowers in different representatives of

this subfamily. To study the types of fruits in the Legumes according to the collections of fruits. To note that in this family the fruits are monocarpic (legume). Draw attention to the fact that the variety of fruits of the legumes is the result of the modification of the monocarpic fruit of the bean.

Draw the flower of the proposed plant of the subfamily Legumes in a workbook (figure 1). Make a formula and a diagram of this flower. Make a morphological description of the proposed plant. Record the result in the table (Appendix 1).

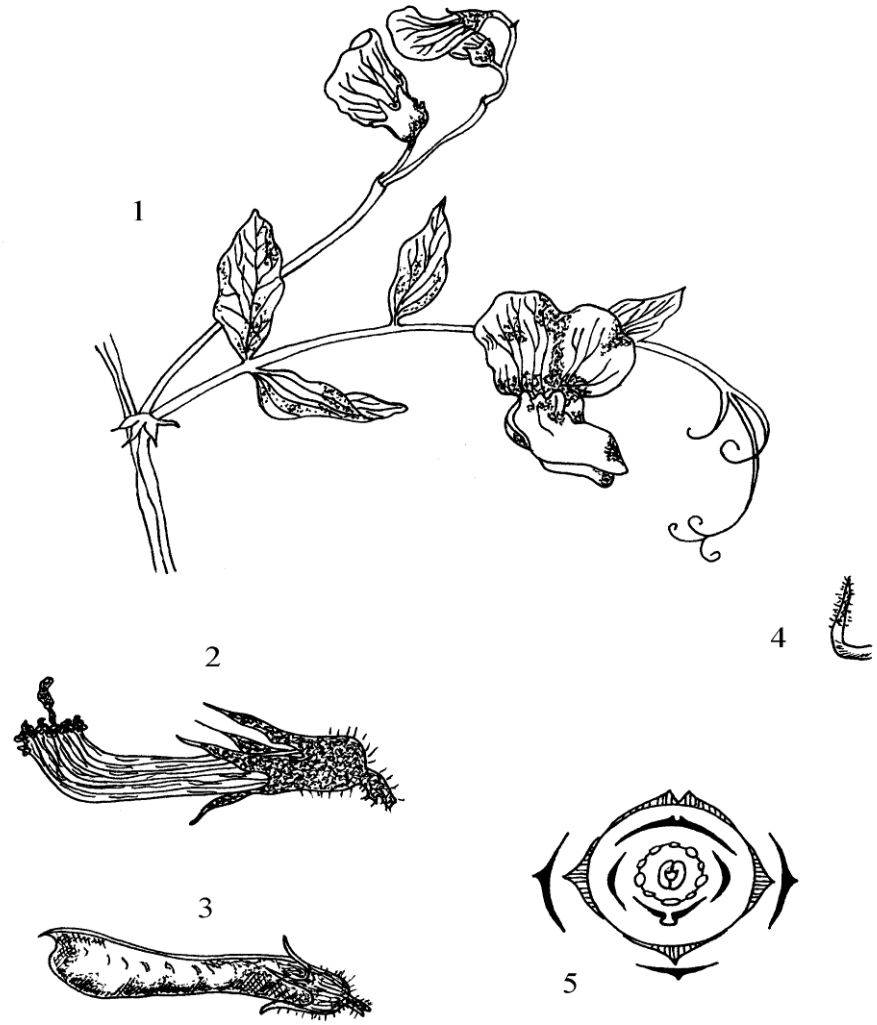

Figure 1. Chyna meadow (Láthyrus praténsis) (Orig.): 1 - general view of the plant, 2 - flower with corolla removed, 3 - fruit legume, 4 - gynoecium, 5 - flower diagram.

Task 2. Comparative characterisation of the different subfamilies of the Fabáceae family.

Using herbarium material, study the morphology of plants of the subfamilies Mimosaceae and Caesalpiniaceae. Note the progressive and primitive characters, compare them with the representatives of the subfamily Fabáceae. Draw attention to the similarities and differences between the representatives of these subfamilies.

Draw the flowers of the proposed plants of the subfamilies Mimosa and Caesalpiniaceae in the workbook (figure 2). Make up the formulas and diagrams of these flowers.

Make a morphological description of the proposed plants. Record the result in the table (Appendix 1).

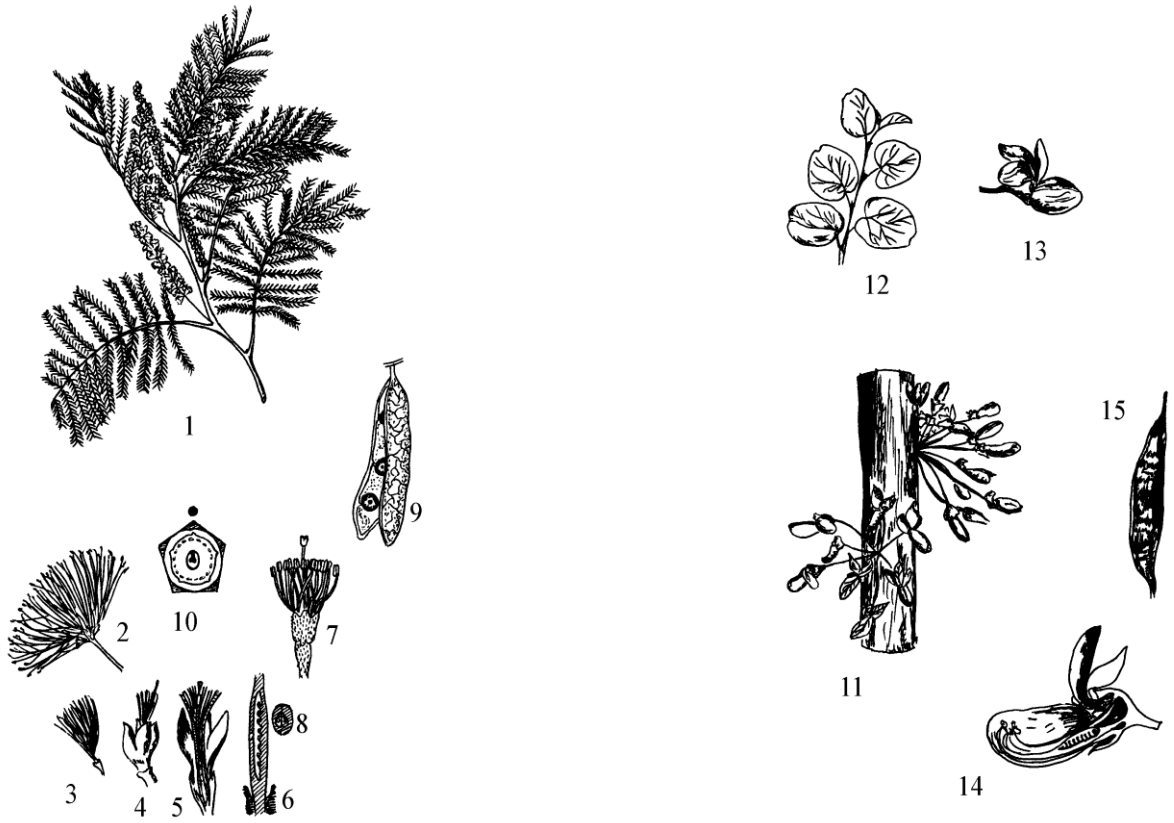

Figure 2. Members of the family Legumes, subfamilies Mimosa and Caesalpiniaceae (Orig.): 1-10 Acacia podbia 1 - general view, 2 - inflorescence, 3 - androceum, 4 - flower without calyx, 5 - flower in section, 6 - gynoecium, 7 - general view of flower, 8 - seed, 9 - legume, 10 - flower diagram, 11-15 Cercis carobis 11 - general view, 12 - shoot with leaves, 13 - flower, 14 - flower in section, 15 - legume.

Task 3: Study the main members of the Apiaceae family.

Using the herbarium and fixed material, study the morphology of plants of the family Apiaceae. Examine the flowers of the representatives of this family. To

study the type of fruits of Apiaceae. To pay attention to the uniformity in the structure of flowers and fruits of the representatives of this family.

Draw the flower of the suggested plant of the family Apiaceae in the workbook. Make a formula and a diagram of this flower. Draw the fruit of an Apiaceae plant (figure 3).

Make a morphological description of the proposed plant. Record the result in the table (Appendix 1).

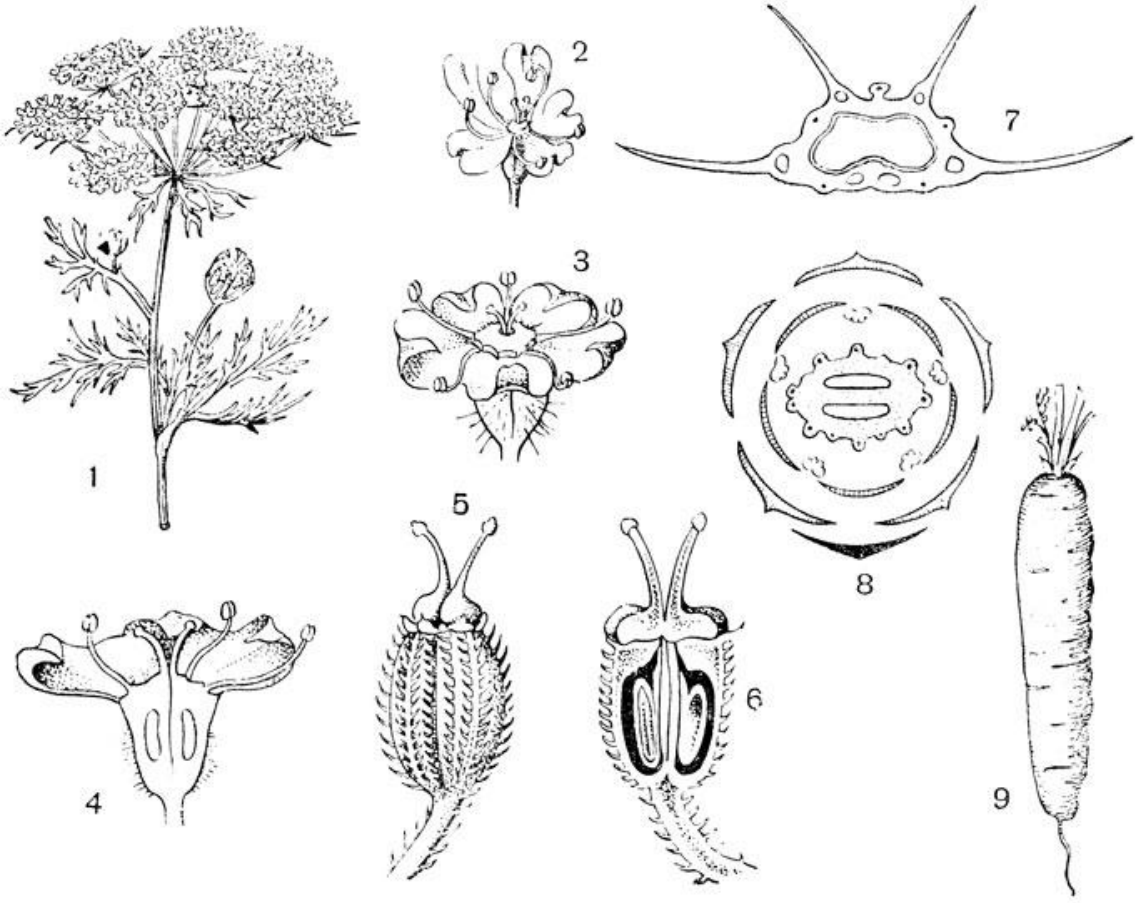

Figure 3. A representative of the family Apeacea wild carrot (Daucus carota) (cited from: Gordeeva T.N., Kruberg Y.K., Pisyaukova V.V. A practical course in plant systematics. M: Prosveshchenie, 1971): 1 - apex of a flowering shoot; 2 - one of the terminal flowers of an umbrella; 3 - one of the middle flowers of the same; 4 - flower in section; 5 - fruit; 5 - fruit in longitudinal section (the endosperm is coloured dark in the image); 7 - transverse section of the fruit; 8 - flower diagram; 9 - root of a carrot

Appendix 1

Morphological description of plants.

Name of the plant				
Leaves, simple or complex, the shape of the leaf blade, the presence of petioles and stipules, pubescence, the shape of the leaf margine, the presence of modifications.				
Stem, branching, orientation in space, the presence of modifications, pubescence				
Root system, the presence of root modifications				
The presence of special organs of vegetative reproduction (whiskers, nodules, bulbs), their origin				
Flower Formula				
Flower Diagram				
Features of the structure of the flower (the presence of spurs, nectaries, colored calyx, etc.)				
Fruit, adaptations to seed distribution				