Thematic block Systematics of flowering plants 1

Lesson 8. Subclasses Rosidae 1.

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 Rosaceae.
3. Comparative characterization of subfamilies of the family Rosaceae. Formulas and diagrams of flowers of the family Rosaceae.

Instructions for the work

Material: Set of herbarium and fixed plant material of the subclass Rosida.
Tables: Spiraea japonica, Common peach, Rosa magalis, Apple tree**,**
Equipment: stereoscope, magnifying glasses, dissecting needles, tweezers, slides, filter paper, distilled water**.**

Methodology of work.

Task 1. Study the main representatives of the family Rosaceae, subfamily Spiraea.

Using herbarium and fixed material, study the morphology of plants of the subfamily Spiraidae. To pay special attention to the similarities and differences in the structure of the flower in different representatives of this subfamily. To study the types of fruits of the Spireidae (Fig. 1). To note that in this subfamily the fruits are apocarpic (multilocular), which indicates their primitivity.

Draw the flower of the proposed plant of the subfamily Spiraea in a workbook. Make a formula and diagram of this flower. Sketch the fruit of a plant of the subfamily Spiraea.

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

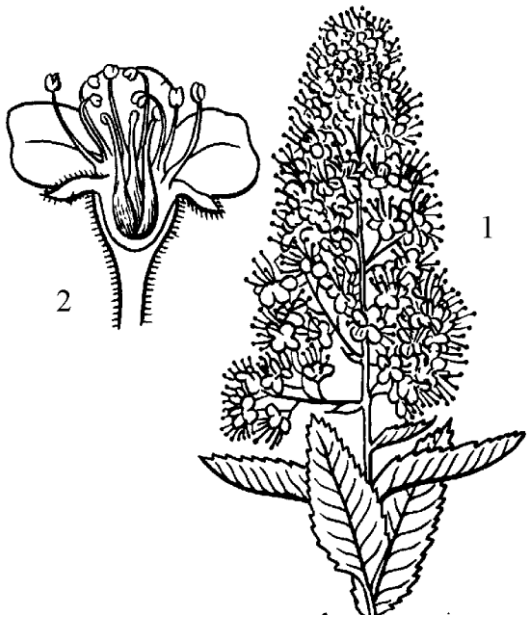

Fig. 1. Spirea willow-leaved (Spiraéa salicifolia): 1 - general view, 2 - flower in section.

Task 2: Study the main representatives of the family Rosaceae, subfamily Roseaceae.

Using herbarium and fixed material, study the morphology of plants in the subfamily Roseaceae (Figure 2).

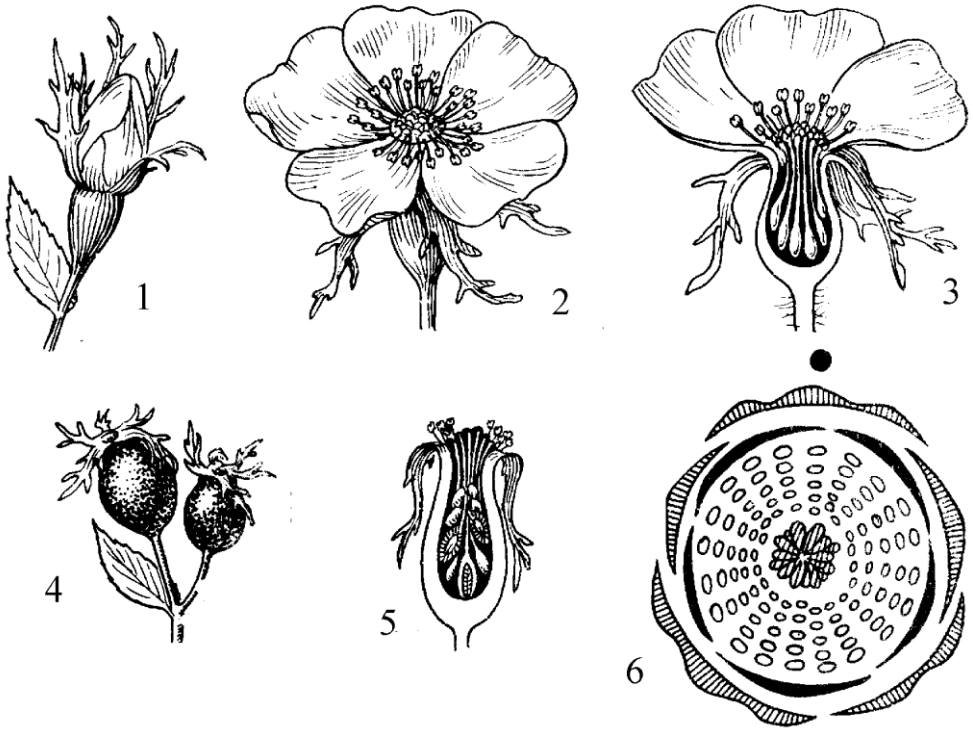

Figure 2. Dog rosehip(Rosa canina) (Orig.): 1 - bud, 2 - flower, 3 - flower in section, 4 - fruit cynarrhodium, 5 - fruit in section, 6 - flower diagram.

Examine the types of fruit in the Rosaceae (Figure 3). Show that in this subfamily the fruits are apocarpic. There are fruit types characteristic only of members of this group (cynarodia, strawberry). Draw attention to the "false fruits" and the participation of flower parts in their formation.

Draw the flower of the proposed plant of the subfamily Rosaceae in the workbook. Make a formula and a diagram of this flower. Sketch all types of fruits of the plants of the subfamily Rosaceae.

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

Figure 3. Fruits of representatives of the Rosaceae family, subfamily Roseaceae: 1 - Utricle (forest strawberry), 2 - etaerio of achenes (creeping lapwort), 3 - etaerio of achenes (urban gravelate).

Task 3: Study the main representatives of the family Rosaceae, subfamily Maloidea.

Using herbarium and fixed material, study the morphology of plants of the subfamily Maloidea. Study types of fruits in Maloidea subfamily. To note that in this subfamily fruits are cenocarpic, there are types of fruits characteristic only for representatives of this group (pome). Draw attention to the "false fruits" and the participation of flower parts in their formation.

Sketch in the workbook the flower of the proposed plant of the subfamily Maloidea (figure 4). Make a formula and diagram of this flower. Sketch the fruit of the plants of the subfamily Maloidea.

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

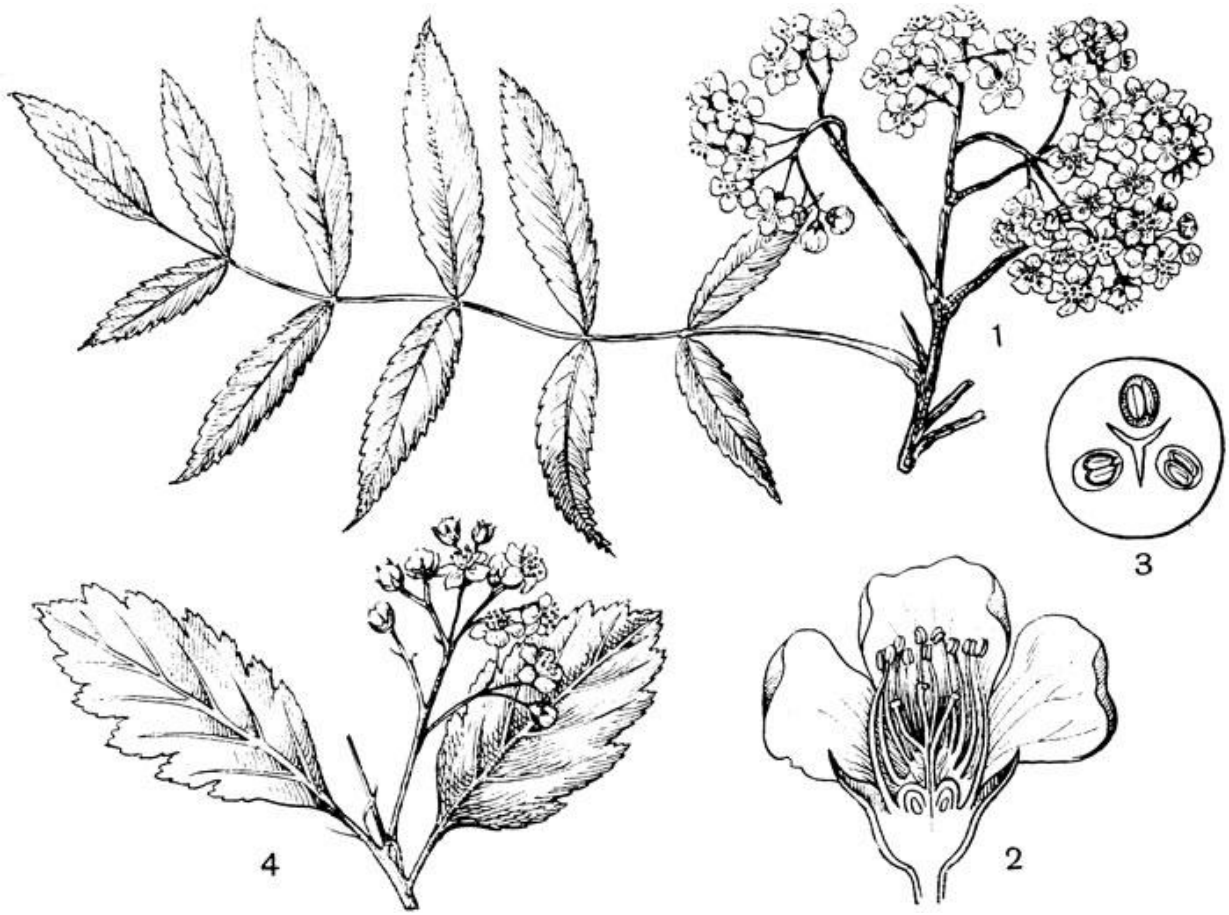

Figure 4. Common rowan (Sorbus aucuparia) (cited from: Gordeeva T.N., Kruberg Y.K., Pisyaukova V.V. A practical course in plant systematics. M: Prosveshcheniye, 1971): 1 - flowering branch; 2 - flower in section; 3 - cross section of fruit. Persian rowan (Sorbus persica): 4 - flowering branch.

Task 4: Study the main representatives of the family Rosaceae, subfamily Prunoidea.

Using herbarium and fixed material, study the morphology of plants of the subfamily Prunoidea. Study the type of fruits of Prunoidea. Note that in this subfamily the fruits are monocarpic.

Draw the flower of the proposed plant of the subfamily Prunoidea in the workbook (figure 5). Draw the formula and diagram of this flower. Sketch the fruit of a plant of subfamily Prunoidea.

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

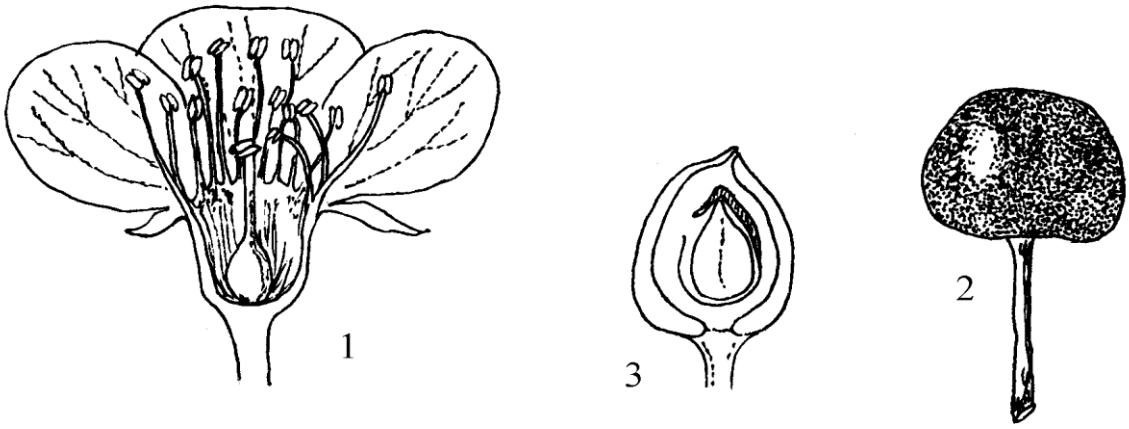

Figure 5. Shrub cherry (Orig.): 1 - flower in section, 2 - fruit drupe, 3 - fruit in section.

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				