

Mendel University in Brno
Faculty of Forestry and Wood Technology
Department of Wood Science

Wood Anatomy

WAEF-pra05

The identification of the most important ring-porous hardwoods and semi ring-porous hardwoods according to microscopic features

working sheet for practice

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INVESTMENTS IN EDUCATION DEVELOPMENT

(WAEF-pra05) The identification of the most important ring-porous hardwoods and semi ring-porous hardwoods according to microscopic features

1 The Goal

- To get skill to identify particular features of microscopic wood structure
- To get skill to identify kinds of woods in the group of ring-porous hardwoods
- To get skill to identify kinds of woods in the group of semi ring-porous hardwoods

2 Theoretical knowledge for practice

- Anatomical elements of hardwoods
- Features of microscopic wood structure
- Features of particular wood kinds in the group of ring-porous hardwoods
- Features of particular wood kinds in the group of semi ring-porous hardwoods

Questions on theoretical knowledge

1. Write down types of cells (anatomical elements) that form hardwood.

_____, _____, _____, _____.

2. What section is the best for ray seriation analysis? ____.

3. What type of rays is formed by parenchyma cells of the same shape?

3 Tools & equipment

- working sheet
- set of microscopic samples of ring-porous hardwoods
- set of microscopic samples of semi ring-porous hardwoods
- microscope

4 Procedure

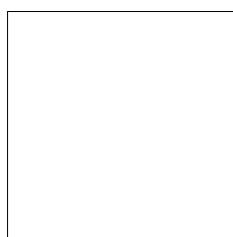
Observe microscopic features of wood on particular samples as it is required in following tasks. Results of observations must be written down or drawn as required.

Ask teacher to check each finished task. If any errors occurred, correct them.

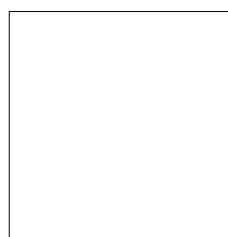
Task 1 – Features of microscopic structure of hardwoods

1. Observe and draw in the tangential view:

- a) uniseriate ray
- b) multiseriate ray

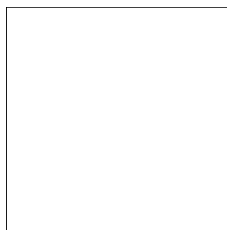


a)



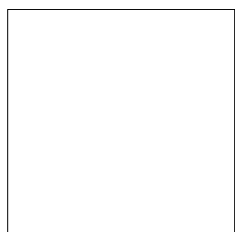
b)

2. Observe and draw heterogeneous ray in *Morus* spp. in radial view.

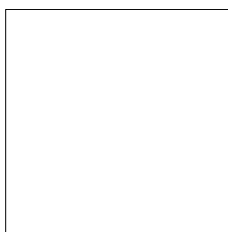


Task 2 – Differences between species within the group of ring-porous hardwoods

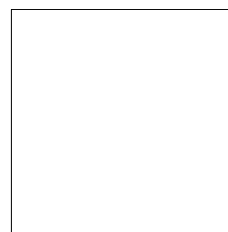
1. Observe and draw characteristic vessel arrangement in transversal view for:
 - a) *Quercus* spp.
 - b) *Castanea* spp.
 - c) *Ulmus* spp.
 - d) *Robinia pseudoaccacia*, *Morus* spp., *Ailanthus altissima*
 - e) *Fraxinus* spp.



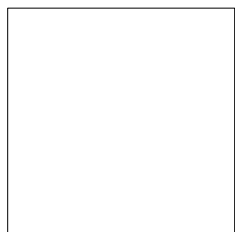
a)



b)



c)



d)



e)

2. What is the most important feature for *Castanea* spp. in the tangential view?

3. What is the most important feature for *Fraxinus* spp. in transversal view?

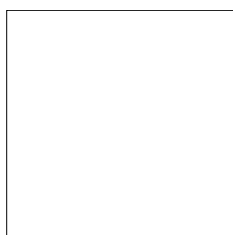
4. What is the most important feature for *Morus* spp. both in radial and tangential view? _____

Task 3 – Differences between species within the group of semi ring-porous hardwoods

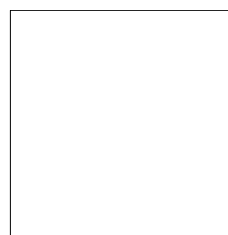
1. Observe and draw arrangement of vessels in the transversal view for

a) *Juglans* spp.

b) *Cerasus avium*



a)



b)

2. Compare the highest ray seriation in *Cerasus avium* and *Sorbus* spp.?

3. Which species within the group of semi ring-porous hardwoods have heterogeneous ray type?

4. Which species within the group of semi ring-porous hardwoods have spiral thickenings? __, __