

Laboratory 5 Study Guide (video: 1 hour 4 minutes)

Study Questions

1. How do vascular wilt diseases differ from those induced by root rot and stem canker ones? How might they be confused?
2. What does the term "*forma specialis*" signify, and why is it applied to *Fusarium oxysporum*?
3. What limitations does the cucumber wilt bacterium have with regard to its being able to survive from season to season? How does it compensate for these limitations? Of what value can disease forecasting have for control this pathogen?
4. How can vascular wilts caused by fungi differ from those induced by bacteria? Are signs evident?
5. Under what conditions is southern blight likely to be found and cause severe damage? Verticillium wilt?
6. Despite a rigid quarantine, the Dutch elm disease fungus managed to enter into the United States. How? What cultural control strategy might be effective in preventing this disease from infecting elms growing in urban conditions, such as those on certain college campuses?
7. Why is the Lesser European elm bark beetle such an effective vector of the Dutch elm disease? Why is the native elm bark beetle much less efficient? How does the transmission of Dutch elm disease differ from that of the chestnut blight?
8. For all intents and purposes, the native American chestnut tree ceased being a factor in the ecology of Northeastern forests; yet, the chestnut blight fungus still thrives there. This fungus has only one host, the chestnut, so how do you explain this apparent discrepancy?
9. Do the various *forma specialis* of *Fusarium oxysporum* have restricted or broad host ranges? Does *Verticillium albo-atrum* have a broad or narrow host range?
10. Where and when does the Lesser European elm bark beetle acquire the inoculum of the Dutch elm disease pathogen?

Key Words

Ascus (-l)
Ascospore

Bark (elm)
Brood galleries (elm beetles)
Cavendish dessert banana
Chestnut blight
Conidium (-ia; macro- and micro-)
Cryphonectria parasitica
Cucumber wilt
Disease forecasting
Dutch elm disease
Erwinia tracheiphila
Flea beetle
Forma specialis
Fusarium oxysporum
Genetic resistance (to vascular wilt diseases)
Graphium ulmi
Lesser European elm bark beetle
Native elm bark beetle
Ooze (vascular)
Ophiostoma ulmi
Perithecium (*Ophiostoma*, *Cryphonectria*)
Pseudomonas solanacearum
Quarantine (to control Dutch elm disease)
Races (of *Fusarium oxysporum*)
Southern wilt
Spring vessels (elm trees)
Vascular discoloration (diagnosis)
Verticillium
Wilt symptoms
Xylem (plugging)