Fungi Lab

Learning Objectives

• State the kingdom of mushrooms, yeast, and bread molds
• State the phylum of the bread mold
• State the phylum of the mushroom (club fungi)
• State the phylum of the yeast (sac fungi)
• State if spores are haploid or diploid
• Be able to identify a zygospore.
• Be able to identify hyphae
• Be able to identify the conidiospores and conidiphores of the ascomycota specimens
• Be able to identify the basidocarp and basidiospores and basidia of the mushroom.
• State what two organisms are involved in a symbiotic relationship to create a lichen.
• Give an example of a type of lichen.

Procedure and Questions

1. Access the page “Reading: Fungi.”
2. Zygomycota (bread mold): View the prepared slides of the zygospores and sporangia.
   a. What kind of reproduction is used by the zygomycota?
   b. Is the zygospore diploid or haploid?
   c. Use the space below to draw a picture of the zygospores as you viewed under the microscope.
3. Ascomycota (sac fungi).
   a. We do not have a slide of the *Peziza*-please view the pictures on the website.
   b. *Aspergillus*: View the slides available of *Aspergillus*.
      i. Can you find any conidiospores?
      ii. Are conidiospores used in sexual or asexual reproduction?
      iii. Use the space below to draw a picture of the conidiospores as you viewed under the microscope.

   c. Yeast: create a wet mount slide of the yeast (as assisted by your instructor) to view under the microscope.
      i. Are yeast single or multicelled?
      ii. Do yeast reproduce asexually or sexually?
      iii. Are you able to view budding, the asexual reproductive process of yeast? View this youtube to help visualize budding.
          https://www.youtube.com/watch?v=iOvrq6ssy2Y
      iv. When yeast reproduces sexually, what is the name of the diploid cell that is formed?
d. We do not have a slide of the *Schizosaccharomyces octosporus*-please view the pictures on the website.

e. Skip over the Morels

f. View the *Penicillium* slides only, no live specimens.

   i. Name the specialized stalks that the asexual spores attach to.

   ii. Use the space below to draw a picture of the *Penicillium* specimen as you viewed it under the microscope.

4. Basidiomycota (club fungi)
   a. View the mushroom specimens available in the lab. Do not dissect them. See if you can find the gills on the underside of the basidiocarp.
      i. Name the specific spores formed by the mushroom in the gills.

   b. View the cross section slide of the *Coprinus* mushroom.
      i. Can you locate the basidiospores?

      ii. Name the specific stalk that the basidiospores attach to.

      iii. Use the space below to draw a picture of the *Coprinus* basidiospores and basidia as you viewed under the microscope.
5. Lichens
   a. There may or may not be live specimens of the lichens to view in the classroom. If live specimens are present, please look at them. And, access this website to learn more:
      http://staff.concord.org/~btinker/gaiamatters/investigations/lichens/typeschlichens.html
      i. What type of lichen has the algae dispersed throughout?

      ii. What type of lichen exhibits the fastest growth?

      iii. What type of lichen grows in a circular pattern forming lobes?

   b. View the lichen thallus slide under the microscope.
      i. What two organisms create the lichen?

      ii. Use the space below to draw a picture of the lichen thallus as you viewed it under the microscope. On your picture try to label both the fungi and the algae.

6. Answer the questions below to summarize the lab activity:
   a. What is the domain of the fungi?

   b. How do fungi obtain energy?
c. What is the reproductive structure of the fungi? It’s not sperm and egg!

d. In the lab activity, which groups of fungi prefer to reproduce asexually? Which groups of fungi tend to exhibit sexual reproduction?

e. A lichen is a mutualistic relationship between what two organisms?
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