BIO 182

Protists, Fungi and Bacteria

Observe, draw, and label the following specimens (as time permits). Answer the questions.

Part I

Chlorophytes: Aquatic Green Algae. On the road to land plants. All have sexual reproductive stages. Observe (100-400x)and draw representatives of:

1. *Chlamydomonas* – unicellular, considered to be a primitive state for the Chlorophyta. The specimens are haploid +/- states that undergo fertilization o diploid zygotes if placed together.
2. *Volvox* – most complex of colonial green algae specimens we have. Draw.

Fucus: a brown algae (Phylum: Phaeophytae). Another example of convergent multicellular structure. Examine a prepared slide at 100-400x and draw. Compare the male and female slides. How are the cells arranged and how are the male and female specimens distinct?

Part II Other Protists

Euglena – Photosynthetic flagellated free living Euglenozoa. Asexual reproduction only. Observe and draw at 100 x.

Didinium – a large Ciliate 100x

Giardia – a biflagellated parasitic protist. This one has binuclei and lacks mitochondria, but contain mitochondrial genes for aerobic respiration. Very faint organism. 100x – 400x

Dinoflagellates – extensive marine and freshwater plankton. 100x – 400x

Diatoms – unicellular silicate shell forming photosynthetic protists. Have many diverse silica shells.100x or 400x

Euglena – Photosynthetic flagellated protists. Asexual reproduction only. Observe and draw at 100 x.

Trypanosomes – prepared slide of a parasitic Euglenozoa (faint and flagellated) in human blood smear. 400x

Plasmodium (malarial parasite) – prepared slide of the parasite from human blood smear. 400 x

Part III

Fungi:

Rhizopus sporangia – look at and draw the mycelium filaments (hypha) and the spore containing structures on the prepared slide and on the bread mold (dissecting scope or scanning power).

Penicillium – note and sketch the hypha and spore producing conida (branching type structures) 40-100x

Mushrooms (basidiomycetes reproductive structures) – look at under the dissecting scope.

Part IV

Prokaryotes:

Bacillus, or 3 bacteria types (bacillus, cocci, spirochete (helical) 400x and 1,000x (oil immersion lens)

Anabaena – actually a cynaobacteria. Observe under 400 x and 1,000x (oil immersion lens). What internal structures are apparent?

Compare size and structure of Anabaena with the bacillus slides.

Clean up oil on lens, slides and anywhere else.

Examine pond water samples and check for protists.