

## Biology Lab Report: Observation of Cell Slides Using a Compound Light Microscope

### **Introduction**

All organisms have cells. They contain one or many cells. These cells reside in a wide range of habitats and carry out many functions. The multiple sizes and shapes of different cells reflect their habitats and functions within an organism. The purpose on this study was to observe different cell types under a compound light microscope and estimates their lengths.

### **Materials and Methods**

The students used the compound light microscope because it has two oculars that are a binocular microscope. The first step was determining the total magnification of the microscope with 10X and 40X objective lens. The students prepared cell slides in the lab and viewed them to estimate their sizes. During the preparation of wet mounts, clean glass slides were first obtained. They then placed the cells on the slides, each cell type on a different slide. Since the cells were small in size, forceps were used to manipulate them into the correct orientation. The students then used pipettes to add drops of methylene blue stain. Then the students put one side of the cover glasses into the stain drop's edge, and the cover glass carefully lowered into the stain to prevent any air bubbles from forming.

The students observed the cells under these magnifying powers, and their sizes recorded. They put each cell slide under the 10 x objective lens (high power). The slides were then focused and laid such that they crossed the field of view's diameter. The students then recorded the diameters of the field of view for each cell slide. They again put the cell slides on a 40 x objective lens (high power) and viewed, in the same way, as in the low power objective lens.

### Observations

The observation of *Peziza apothecium* under the compound microscope looked like somewhat flattish disks or shallow cups. The students observed vertically arranged asci. The spores were grayish blue colored spots inside the dull-yellow asci.

Stained Diatoms appeared as single celled silicon-like shells under the light microscope. They appeared greenish. The Diatoms also contained chlorophyll, indicating that they are autotrophic through photosynthesis. *Rhizopus sporangia* zygotes appeared purple with many small, black or dark spores at the coenocytic mycelium upright branches' ends. The upright sporangiophores appeared connected to one another through stolons. The zygosporangia appeared as dark structures which included thick, dark walls.

Under the light microscope, the red blood cells of *Trypanosomes lewisi* stained blood smears appeared as small pink cells. The cells had a lighter pink axis and were biconcave in form or shape. The white blood cells of *Trypanosomes lewisi* stained blood smears appeared clear and contained a darkly tinted cell nucleus. The nucleus appeared anterior and the kinetoplast remote from the extremity posterior and oval in shape. The kinetoplast also appeared transversally to the body. In addition, microscopic observations of *Foraminifera* revealed agglutinated shells with biserial chamber arrangements. The cells contained tests or shells and seemed grayish in color. The diameters of *Foraminifera strew* cells were approximately 0.5 mm in size. They lacked tissues and organs, but possessed granuloreticulate pseudopodia, thread-like ectoplasm extensions.

*Paramecium Protista* appeared single celled under the microscope. The cell was oval, slipper-shaped, pointed at the bottom and rounded at the top. They contained a cytoplasm, food vacuoles, trichocysts, the gullet, micronucleus and macronucleus. The cells were 0.25 mm long,

and they contained hair-like projections, cilia. The cells also appeared greenish under methylene blue staining. Moreover, the microscopic observations of *Radiolaria strew* showed single-celled organisms. They had mineral tests or skeletons composed of silica. This test seemed covered with the cytoplasm. In addition, *Radiolaria* also had a central capsule which contained the nucleus, Golgi bodies and the mitochondria. The cells were typically elaborate in structure and gray in color.