

GENERAL BOTANY Lecture 2 - What is a plant?

- I. Why are plants important?
 - A. Plants are living
 - B. Plants provide oxygen
 - C. Plants feed the world
 - D. Plants provide clothing and shelter
 - E. Plants can be used for medicine
 - F. Plants are beautiful
- II. What makes a plant different from other kingdoms?
 - A. Kingdom PLANTAE (plants)
 - 1. Multicellular
 - 2. Autotrophs (chloroplasts)
 - 3. Cellulose in cell walls
 - 4. Eucaryotic (true nucleus; DNA separated by a membrane)
 - B. The other kingdoms
 - 1. ANIMALIA: i.e., man
 - a) Motile
 - b) Heterotrophs
 - c) No cell walls
 - 2. MYCOTA: i.e., mushrooms, bread molds
 - a) Heterotrophs
 - b) Chitin in cell walls
 - 3. PROTISTA (PROTOCTISTA): i.e., algae, slime molds
 - a) Unicellular
 - 4. MONERA (ARCHAEA and BACTERIA)
 - a) Prokaryotic (no true nucleus; DNA floats freely in cell)
- III. What are some structural features of plants?
 - A. Cellulosic cell walls
 - B. Chloroplasts
 - C. Appearance
 - 1. Can include stems, leaves, and roots
 - 2. Some lack true stems, leaves, and roots
- IV. How does a plant function?
 - A. Metabolism
 - 1. Photosynthesis
 - 2. Respiration
 - B. Water and nutrients
 - 1. Xylem and phloem (important in distinguishing plants from other organisms)
 - C. Growth and development
 - 1. Hormones
 - 2. Photoperiodism / temperature
 - 3. Circadian rhythm
 - D. Environment
 - E. Reproduction
 - 1. Sexual reproduction
 - a) Monoecious - male & female parts on same plant
 - b) Dioecious - male & female parts on different plants
 - 2. Asexual reproduction
 - a) Vegetative
 - b) Sporophytic
- V. How are REAL plants distinguished from other organisms studied in botany?
 - A. In addition to being eucaryotic, multicellular, autotrophic, and cellulosic, REAL plants have VASCULAR TISSUE (xylem and phloem)
 - B. See flow chart

SUMMARY STATEMENTS

- 1. Plants are essential to life on earth
- 2. Plants are eucaryotic and multicellular with cellulosic cell walls
- 3. Plants photosynthesize, respire, develop, and reproduce
- 4. Plants have vascular tissue