TGM1001 – Botany

Instructor: Dr. Emre Aksoy
TA: Ayten Kübra Türkmen
Office Hours: Mondays & Tuesdays & Fridays 13:15 – 15:00

Meeting times and location
Mondays & Wednesdays 10:30 – 12:15 TBTF B105 (M) or C105 – Laboratory (W)
Come to class!!!!!!

In-class quiz....
Study in groups
Academic Integrity is important!

Plagiarism vs. Cheating

What is the difference?
Ask Questions

Be ready to answer to my Questions
What Is Plant Biology?

Chapter 1

*Dicentra uniflora* - Relatives of bleeding hearts

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Outline

• Human and Animal Dependence on Plants
• Botany as a Science

Learning Objectives

• Understand how humans have impacted their environment.
• Explain how and why all life is dependent on green organisms.
• Define the term “botany”.

Plants

**Antiaris toxicaria**  
Upas Tree

Java Island  
Deadly sap

**Opium poppy**  
Toxic Latex  
Narcotic drug
Psychoactives

Passiflora incarnata ~ “Passion-Flower”
Erythroxylum spp. ~ “Coca Leaf”
Papaver somniferum ~ “Opium Poppies”
Nicotiana spp. ~ “Tobacco”
Mitragyna speciosa ~ “Kratom”
Humulus lupulus ~ “Hops”
Silene capensis ~ “Root of the White Ways”
Calea zacatechichi ~ “Bitter Dream Herb”
Catha edulis ~ “Khat”
Areca catechu and Piper betle ~ "Betel Nut" and “Betel Leaf”
Leonotis leonurus ~ “Wild Dagga”
Sceletium tortuosum ~ “Kanna”
Duboisia hopwoodii ~ "Pituri"
Pedicularis densiflora ~ “Indian Warrior”
Piper methysticum ~ “Kava Kava”
**Plants**

- **Brosimum utile**
  - Cow Tree
  - Venezuela & Brazil
  - Sweet & nutritive latex

- **Opium poppy**
  - Medicinal & Food industry

- Edible Latex
World population is increasing...

https://www.populationeducation.org/content/population-information

How do we feed them?
Human and Animal Dependence on Plants

• Plants are the source of multiple products of human society:
  • Food
  • Perfumes
  • Dyes
  • Beverages
  • Lumber
  • Paper
  • Clothing

• Nutrition
• Energy (Biofuel)
• Production of cosmetics and medicines
Food

Hazel nut

Barley
Healthy Diet means Healthy You!
Perfume

Lavendula spp.  Rosa spp.
Dyes

*Delphinium spp.*

Larkspur
Beverages

Camellia sinensis

Agave palmeri
Lumber

Black walnut
(Juglans nigra)

Pine spp.
Paper

*Poplar spp.*
Clothing

Gossypium hirsutum

cotton
Horticultural and Spiritual Functions

**Black sage**, *(Salvia mellifera)*, can be used against pain. A strong **sun tea** of the **leaves** and **stems** of the plant can be rubbed on the painful area or used to soak one's feet. **California bay** *(Umbellularia californica)* leaves are used to treat pain.

**Horsetail** or **Scouring Rush** *(Equisetum spp.)* is used as a **diuretic**. **Matilija poppy**, *(Romneya coulteri)* is applied **topically** to treat sunburn.
Biofuel

PLANTS IN SPACE

Plants on Mars

Experiments in Space Station

Study of microgravity
PLANTS IN SPACE

What was the first vegetable to be grown in space?

In October 1995, the potato became the first vegetable to be grown in space. NASA and the University of Wisconsin, Madison, created the technology with the goal of feeding astronauts on long space voyages, and eventually, feeding future space colonies.

Plants grown in space include:

Arabidopsis (Thale cress) – Model plant
Mizuna lettuce
Super dwarf wheat
Apogey wheat
Brassica rapa
Rice
Tulips
Kalanchoe - kalanço
Flax - keten
Onions, peas, radishes, lettuce, wheat, garlic, cucumbers, parsley, and dill
Cinnamon basil
WHAT IS BOTANY?
Botany As A Science

Study of plants

- Botany = Botanikos (Greek, meaning botanical)
- At first, interest in plants was **practical**.
  - Centered around the production of food, fibers, fuel, and medicine.
- Eventually, an intellectual interest arose.
  - **Science** involves the observation, recording, organization, and classification of information.
Wednesday we meet at 10:30 in B105.