



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Plant Physiology

2021-3-E1301Q055

Aims

Aim of the course is the knowledge of the main aspects of plant physiology and biochemistry. 1. Knowledge and understanding: at the end of the course students will have acquired knowledge of the main physiological and biochemical processes of plants. 2. Applying knowledge and understanding: the learned concepts allow to understand the fundamental role of plants in the environment and to envisage their possible applications in different fields of biology. 3. Making judgements: at the end of the course students will be able to understand the mechanisms of the described physiological and biochemical processes and to establish the correct relations among them. 4. Communication skills: at the end of the course students will have acquired an adequate scientific language and will be able to properly explain the treated topics. 5. Communication skills: at the end of the course students will be able to read the scientific literature and to further pursue personal studies.

Contents

Aspects of plant physiology and biochemistry

Detailed program

Uptake and translocation

Plant and water - Soil and water potential. Water movement. Transpiration and stomata regulation. Ion and solute uptake at the cell level. Phloem translocation.

Nutrient assimilation

Photosynthesis. Photochemistry. Calvin cycle and photorespiration. Regulation of Calvin cycle. CO₂ concentrating

mechanisms (pumps, C4 and CAM plants).

Nitrogen assimilation (nitrate, ammonium, symbiosis).

Plant hormones

General aspects. Auxin: Structure, biosynthesis, catabolism and transport, physiological effects, action mechanism (cell enlargement and tropisms).

Prerequisites

No prerequisites. Useful background: botany, biological chemistry

Teaching form

Frontal lessons (6 CFU). During COVID-19 emergency lesson mode: remote asynchronous.

Textbook and teaching resource

L. Taiz, E. Zeiger, Fisiologia Vegetale, IV Italian Edition, Piccin Editore

Semester

first semester

Assessment method

Oral

An argument of student's choice and a question of the teacher.

Office hours

By appointment (raffaella.cerana@unimib.it)
