

Kafrelsheikh University
Fac. Of Science
Bot. Department
2nd Term/ May 2019/2020



2nd level/ Education –Biology.
Specialized programe
Course Title: Plant Physiology
Research Subject

Write in only one research point of the following

- 1- Effect of osmotic pressure of outer solution on absorption force of plant cell (concept of water potential-osmotic pressure-factors affect the rate of absorption).
- 2- The physiological significance of studying the phenomena of permeability of plant cell membranes with consideration of the effect of composition of outer solution (consider the membranes structure, balanced solution, antagonism, ...).
- 3- Imbibition is one of the effective physiological mechanisms for water absorption (concept of imbibition, factors affect the rate of imbibition, significance of imbibition in plant physiology,....).
- 4- Water transport process in plant and soil (consider the rate of diffusion, bulk flow, available water, aquaporine,).
- 5- Water loss from plant to environment through transpiration (consider; concept of transpiration, stomata structure, stomatal regulation, factors affect the rate of transpiration, different methods for measuring the rate of water loss,).
- 6- A comparison study for different theories that explain the mechanism of water ascent in plant upward.
- 7- Essential elements for plants (consider their classification, their occurrence in nature, the disturbance in plant metabolism due to elemental deficiencies,).
- 8- Nutrient solutions and different techniques that are used in nutritional study (composition of solution, Hoagland solution, advantage and disadvantage of different techniques,
- 9- Nitrogen assimilation and sulfur assimilation (nitrification, reduction of nitrate into ammonia, reduction of sulfur,
- 10- The transport of elemental ions in the soil.

Best Wishes