

## Tárgytematika / Course Description

### Macro and micronutrients in the soil-plant system

N\_DMA07

Tárgyfelelős neve /

Teacher's name: dr. Szakál Pál

Félév / Semester: 2022/23/1

Beszámolási forma /

Assesment: Vizsga

Tárgy heti óraszám /

Teaching hours(week): 0/0/0

Tárgy féléves óraszám /

Teaching hours(sem.): 30/0/0

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### OKTATÁS CÉLJA / AIM OF THE COURSE

The goal of this course is to teach the students with the importance of macro- and microelement contents of plants and its role in biochemical pathways in particular regarding production quality. During the lesson they will gain knowledge on the quantity and compound-variants of the macro- and microelements, which are important in regards to feeding. The introduction of the soil systems also has particular importance, which includes their adsorption specialities and their ability of cation changing. Having knowledge on the nutrient-service of the soils, the uptakes of plants and nutrient-dynamics we will examine the salt-complexes uptake facilities of the different types of compounds in regards to their stability-constants. In addition special attention will be given to the role of the enzymes and metaloenzymes.

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### TANTÁRGY TARTALMA / DESCRIPTION

1. Soil structure, adsorption, ion exchange.
2. Chemical elements, acid-base processes.
3. Key macro- and microelements, compounds, electronegativity, redoxi processes, properties, creation.
4. Complex compounds.
5. The micronutrients, enzymes and their relationship.
6. The role of macroelements in the biochemical processes.
7. The role of microelements in the biochemical processes.

8. Macro- and microelements role in plant nutrition.
9. Elements and their interactions
10. Plant nutrient uptake and its dynamics.
11. Macro- and micronutrients deficiency symptoms.
12. Analytical detection methods of macro- and micronutrients.

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## SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESSMENT'S METHOD

Meeting the conditions set by the supervisor.

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## KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

**Clayden, Greeves, Warren and Wothers** (2001): Organic Chemistry, Oxford, University Press

**Darrel D. Ebbing** (1984): General Chemistry, HoughtonMifflin Company Boston

**Stefanovits P.** (1999): Talajtan. Mezőgazda Kiadó. Budapest.

**Pais I.** (1999): A mikroelemek jelentősége az életben.

**Loch J., Nosticzius Á.** (1992): Agrokémia és növényvédelmi kémia. Mezőgazda Kiadó. Budapest.

**Ádám V. (szerk.)** (2006): Orvosi biokémia. Medicina könyvkiadó zRt. Budapest.