

# Online seminar

# Soil analysis

- Physical properties
- pH
- Nutrient content,...

Helps determine: nutrient availability

determine the values of the following fertilization  
economic decision making

- sampling after harvesting or before fertilizing (in several places depending on the plot – slope, sampling depth,...)

- soil texture refers to the proportion of sand, loess and clay particles
- the soil triangle is used in soil texture analysis
- different textures affect the physical processes in the soil:
  - eg: **sandy soils** drain quickly but have limited water holding capacity and low nutrient content

**loess soils** are more fertile than sandy soils and retain water better

**clay soils** hold water well, but drain poorly

**loamy soils** (also called agricultural soils) are generally preferred because they retain moisture, nutrients and humus well

# Soil properties:

Specific gravity

Density

Porosity

pH

- see exercise no. 3 and no. 4

number of soil	weight of the soil with natural humidity (g) - z <sub>1</sub>	weight of the soil after drying at 105 ° C (g) - z
1	124,9	95,2
2	173,9	144,5
3	118,5	94,9
4	141,9	117,8
5	84,3	55,2
6	129,3	106,8

il no.	Specific gravity
1	2,5
2	2,7
3	2,4
4	2,5
5	2,2
6	2,5

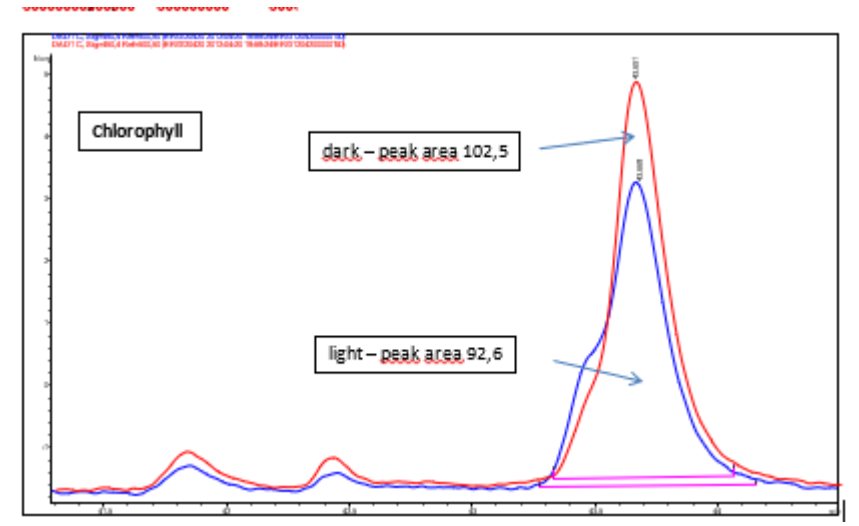
# Density

- bulk density is an indicator of soil compaction
- a high level of compaction is undesirable
- compaction reduces pore size, inhibits root growth, water storage and oxygen availability
- the necessity of prevention – possible adjustment of compaction by adding sand or mechanical crushing of topsoil

# Evaluation of the experiment - influence of factors on the quality of MP

- determination of N
- HPLC analysis
- calculation of values per unit of dry matter (tenth of a gram)
- graphic output

Plant species	Cultivation	weight of test tube +		weight of test tube + weight	weight of	weight of
		weight of fresh material	weight of fresh material test tube			
<i>Iresine herbstii</i>	light	17,011	13,963	14,275	3,048	0,312
<i>Iresine herbstii</i>	dark	15,867	13,967	14,15	1,9	0,183
<i>Tradescantia pallida</i>	light	19,898	14,041	14,315	5,857	0,274
<i>Tradescantia pallida</i>	dark	17,632	13,903	14,387	3,729	0,484
<i>Browalia</i>	Eriksson medium	15,147	13,813	14,022	1,334	0,209
<i>Browalia</i>	Heller medium	15,444	13,859	14,112	1,585	0,253
<i>Browalia</i>	water	15,356	13,999	14,247	1,357	0,248
<i>Plectranthus forsteri</i>	soil no.1	17,161	13,975	14,124	3,186	0,149
<i>Plectranthus forsteri</i>	soil no.2	16,49	13,192	14,062	3,298	0,87
<i>Plectranthus forsteri</i>	soil no.3	17,116	13,837	14,007	3,279	0,17
<i>Plectranthus forsteri</i>	soil no.4	17,284	14,022	14,229	3,262	0,207
<i>Plectranthus forsteri</i>	soil no.5	17,59	13,973	14,123	3,617	0,15
<i>Plectranthus forsteri</i>	soil no.6	17,104	13,837	13,995	3,267	0,158



cultivation	Anthocyanine - peak areas – fresh material
light	44.7
dark	9.9

plant	cultivation	weight of fresh material	weight of dry material	% of Water content	anthocyanin	anthocyanin (0.1 g)	chlorophyll	chlorophyll (0.1 g)
<i>Tradescantia pallida</i>	Light	5,857	0,274	95,3	44,7	16,31	92,60	33,80
<i>Tradescantia pallida</i>	Dark	3,729	0,484	87	9,9	2,05	102,5	21,18



# Odkazy:

- <https://www.sciencedirect.com/topics/earth-and-planetary-sciences/soil-porosity>
- <https://www.youtube.com/watch?v=Rt1qD7Ldhng>
- <https://www.youtube.com/watch?v=moexid5puSl>
- <https://www.youtube.com/watch?v=zQowljL8e5E>
- [https://www.youtube.com/watch?v=i0ymSP\\_e2-w](https://www.youtube.com/watch?v=i0ymSP_e2-w)
- [\(12\) Nitrogen Cycle | #aumsum #kids #science #education #children - YouTube](#)
- [Cation Exchange \(youtube.com\)](#)

[Půdy – Procvičování online – Umíme fakta \(umimefakta.cz\)](#)