

1. Impact of increasing concentration of CO₂ on Cs and Sr uptake by C3 and C4 plants

The aim of this work is to determine whether the concentration of CO₂ affects the uptake of Cs and Sr into the plants from C3 and C4 groups. What concentrations of Cs and Sr in the plant affect its fitness and how.

2. Analysing of filtration materials for metal content and ecotoxicology to evaluate their recycling potentials

The work will be based on series of laboratory experiment for analyses of metal content and their desorption from used filtration materials and testing ecotoxicology. The aim of the work is to evaluate the recycling possibilities of filtration materials after end of their life time.

3. Constructed wetland and its use for grey water treatment

The aim of the work is to experimentally verify the suitability of constructed wetland for grey water treatment and removal of selected micropollutants

4. Desorption of cesium from clay material induced by low direct current

The aim of this work is to find out which parameters of the electric field are most suitable for desorption of cesium from clay rock or clay minerals.

5. Impact of drought on Cs and Sr uptake from contaminated soil

The main goal of the thesis is to study effect of long term drought on Cs and Sr transfer from soil to higher plants and the role of nutrients increasing the resistance of the plants.

6. Influence of weak electric current on germination of lettuce seeds in the cesium chloride solution.

The experimental part is divided into two series of experiments. The first series of experiments will aim to determine whether it is possible to stimulate the germination of lettuce seeds with low current. The second series will aim on the effect of low current and its impact on the germination of lettuce seeds in a solution of cesium chloride simulating germination in the environment after a nuclear accident.

7. Effect of different additives to filter on removal efficiency of selected micropollutants from grey water

The main aim of the work is to study the role of different additives to filtration bed and their impact on removal efficiency of selected micropollutants from grey water

8. Impact of different filters design on removal of selected micropollutants from grey water

The main aim of the work is to study the impact of aeration, treated water recirculation on efficiency of grey water treatment by filtration.

9. Stimulation of plant growth induced by electric field

The aim of the experimental work is to determine the parameters of the electric field that will stimulate the growth of plants.