Potential Use of Secondary Metabolite in Protection against Plant Parasites

Cornakova, Jana

The aim of the study was to evaluate the effect of different tannin concentrations on potato cyst nematode Globodera pallida in in vitro and in vivo experiments and then determine phytotoxicity and soil respiration of used concentrations. In in vitro hatching test, I compared the effect of 7 concentrations of tannin, which we have applied on G. pallida. During the 12 weeks, we watched hatching of larvae and we counted them in weekly intervals. Simultaneously, during the three months, in vivo test was carried out, where we used three different concentrations, concerning the surface of the pot, in which the cyst nematode were placed and where the susceptible potato variety Desireé was planted. At the end of both experiments the cysts were crushed and hatched but also unhatched eggs were counted and then the monitored parameters for both tests were set. In the following tests, we observed the effect of the concentrations used in these experiments on the phytotoxicity and the fluorescence of Avena sativa L. during 7 days, and also on the activity of soil microorganisms through the soil respiration in 48 hours interval. The results showed that in the hatching test in both analyzes, tannin significantly reduced the monitored parameters. At the highest concentrations, the inhibitory effect and also the decrease of fluorescence on the Avena sativa L. were recorded. While measuring the soil respiration we detected increased levels in comparison to a control without tannin. In this project I discovered the optimal concentrations of tannin which reduce the occurance of Globodera pallida and do not have a phytotoxic effect on the plant as well as on the soil microorganisms. Therefore I have decided to draft tannin as a potential alternative control method against mentioned paraste

Awards Won:

Fourth Award of $500