Spruce bark aqueous extracts as modulator in copper induced stress

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Plants manifest a certain reaction against increasing of heavy metals toxic concentration in the cultivated soils. The differences depends on plant sensitivity, species, time exposure intensity (concentration of heavy metals,
cultivation length), or amendments applied on cultivated site. The challengeof this work is to investigate the influences of different amendments such as biologic active compounds, on the seedling stage and growth responses, copper uptake and accumulated at different evolution stage of plants. Thus, physiological responses of maize (Zea mays) under copper ions stress and polyphenolic amendments were evaluated in pot cultivation experiments through roots and stem length measurements and quantitative determination of wet biomass. The distribution of copper ions concentration in different parts of the plants was estimated by flame atomic absorption spectrometry. In some cases stimulating effects were identified for different concentrations of spruce bark extracts applied on maize seed under copper stress. Other extracts seems to have inhibiting proprieties on maize plant growth. In conclusion spruce bark extracts can have stimulator as well as inhibitor effect depending on the concentrations of biological active compounds and the presence of copper ions.