

## **ABSTRACT:**

Seed root inhibition tests with 18 species of flax (*Linum usitatissimum*) were carried out with different concentrations of TNT (trinitrotoluene) in order to elucidate intervarietous differences regarding their abilities to degrade nitrocompounds. The curves demonstrating dependency of root lengths on TNT concentrations varied significantly. The outcomes were influenced by the fact that five of the species germinated problematically even with the zero level of TNT. Callus cultures were grown from six of the species and cell suspension cultures were derived from three of them. Cell suspension cultures were tested on the ability to degrade TNT and DNT (dinitrotoluene) present in the medium. The decrease of TNT or, respectively, the decrease of DNT concentrations in the medium was measured by HPLC. It was discovered that contrary to TNT, DNT is very toxic for the cells when its concentrations get close to the level of maximum solubility. Trinitrobenzene, 2-aminodinitrotoluene and 4-aminodinitrotoluene were identified as main degradation products of TNT. Further on, 2D electrophoresis was performed with samples from cultures of two species stressed by DNT and TNT. In case of DNT an increase of protein density was marked in a certain area while in case of TNT no similarity was found between responses of the said stressed cultures.