



“Gheorghe Asachi” Technical University of Iasi, Romania



Posters

P1

EFFECT OF COMBINED POLLUTION OF CHROMIUM AND BENZO (A) PYRENE ON SEED GROWTH OF *LOLIUM PERENNE*

Chigbo Chibuike Onyema, L.C. Batty

University of Birmingham, U.K.

Abstract

The single and joint effects of chromium (Cr) and benzo (a) pyrene (B (a) P) on the seed germination and the elongation of root and shoot of *Lolium perenne* were investigated.

The results showed that in solution, increasing concentration of Cr could inhibit the germination rate as well as root and shoot elongation of *L. perenne*. Also, the increasing concentration of B (a) P (1-4mg.L⁻¹) could accelerate the germination rate of *L. perenne*. The joint toxicity of Cr and B (a) P showed that increasing concentration of Cr and B (a) P could have a significant ($p < 0.05$) antagonistic effect on the germination rate of *L. perenne*.

In the single factor experiments and joint effect tests of Cr and B (a) P on the seedling growth, it was found that root and shoot elongation was inhibited significantly ($p < 0.05$) for higher concentration of Cr whereas increasing concentration of B (a) P non-significantly ($p > 0.05$) accelerated the shoot elongation of *L. perenne*. However, root elongation was inhibited for lower concentration of B (a) P and was accelerated for higher concentration of B (a) P although results were non-significant. There were significant relationships between the concentration of pollutants and the root and shoot elongation ($p < 0.05$). Higher concentration of B (a) P with low concentration of Cr had significant ($p < 0.05$) antagonistic effect on shoot and root elongation of *L. perenne* in solution tests. Also, low concentration of B (a) P with increasing concentration of Cr had a significant ($p < 0.05$) synergistic effect on shoot elongation.

The toxicity effects of Cr and B (a) P to seed germination or root and shoot elongation are in the following sequence: Root elongation > shoot elongation > germination rate.
