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Applying Bioassays for Investigation of Soils from Suburban Green Sites

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Abstract **–** Urban green sites have many environmental and social benefits. As soils are key elements of these sites, investigation of their characteristics is highly recommended. In the present study, six different bioassay methods were used, together with physico-chemical and chemical measurements, to investigate the soil quality in suburban green sites in Budapest, Hungary. The bioassays were carried out using test species from different taxonomic groups: *Azomonas agilis* and *Pseudomonas fluorescens* (bacteria), *Sinapis alba* and *Lactuca sativa* (plants), *Folsomia candida* and *Eisena fetida* (invertebrates) were also used. All the performed bioassays showed some extent of toxicity due to the contact with certain soil samples, however the test organisms demonstrated varying sensitivity. According to the results, dehydrogenase activity of *P. fluorescens*, germination rates of the tested plants, and reproduction of invertebrates were the most sensitive endpoints. Toxicity of soil samples could be partly explained by its Cd, Cr and Pb content, since levels of these metals were far above the natural background. Our results encourage the need to investigate the soil quality in suburban green sites, as well as combining different bioassay methods during soil examinations.

Keywords**:** Bioassay, Urban soil, Green site, Heavy metal.