



Toxicity Evaluation of Leachates from some Urban Wastewater Collectors of Shkodra using *Allium cepa* L. Test[#]

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Abstract: Open dumps having not well isolated walls, damages and direct intrusions to collectors from construction industry and the absence of waste waters treatment, are present anywhere in Shkodra city, Albania. Their leachates percolate the soil, can contaminate groundwaters and provide danger for biota and population of Shkodra Lake basin. The purpose of this paper was to evaluate the toxic impact of raw waste leachates from some Shkodra city wastewater collectors, using *Allium cepa* (L.) test. Leachates were taken from: Rusi vegetable market (RVM), University campus (UC), a centre city domestic (CCD) and the main collector runoff to the lake (MCL) open dump sites. The onion bulbs were grown in 1%, 2.5%, 5%, 20% concentrations of each leachates sample. Cyto and genotoxic parameters as: Mean root length (MRL), 50% toxic effective concentration (EC₅₀), Mitotic Index (MI) and chromosome aberration (CA) rate and types were evaluated and compared with respective values of tap water control, using χ^2 test. Growth restriction was present in all leachate samples increasing the concentrations. The ascending order of MRL and MI values at all concentrations was: CCD>RVM>UC>MCL. The EC₅₀ values were reached at: 2.9% (MCL), 3.5% (UC), 5.5% (RVM) and 6.2% (CCD) leachate concentrations. There was a linear relationship between root growth inhibition and genotoxicity parameters. The most frequent types of CA were: stickiness, chromosome bridges and fragments, laggard and vagrant chromosomes. These results indicated the presence of toxic substances in all examined wastewater dump sites leachates, which can seriously threat Shkodra urban and Lake ecosystems health.

Keywords: *Allium test, leachates, Shkodra wastewaters, citotoxicity, genotoxicity*

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