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**Depression of mitotic indices and induction of chromosomal aberrations in common onion (*Allium cepa*) following exposure to selected industrial effluents**

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Industrial effluents discharge wide array of chemicals with large volumes to river systems and these may have potential threats to biota. The present study was carried out to evaluate the potential cytotoxic and genotoxic effects of two treated industrial effluents reaching Kelani river system at Biyagama and Pugoda. Seethawaka area of Kelani river was used as the reference site. Cytotoxicity and genotoxicity were assessed using standard bioassay with root tip cells of common onion (*Allium cepa*). The water/effluent samples were collected from each site during three sampling visits (during February, June, August) in 2010 and physicochemical parameters of water/effluents were measured *in situ*. Bulbs of common onion were exposed in the laboratory to these water/effluent samples and to the aged tap water. Cytotoxicity and genotoxicity effects were investigated using the mitotic indices and nuclear aberrations of root tip cells of the common onion exposed to these samples respectively. Most of the pollutant indicative physicochemical parameters in the effluents were significantly higher compared to the water collected from Seethawaka site and tap water. The mitotic indices of *A. cepa* exposed to effluent samples were lower ( $P < 0.05$ ) than those exposed to water from the reference site and tap water indicating the presence of cytotoxic pollutants in the effluents. Prevalence of chromosomal aberrations in *A. cepa* root tip cells exposed to effluent samples were 3-6 folds greater compared to those exposed to water collected from the reference site and tap water. Among chromosomal aberrations, occurrence of sticky chromosomes was the highest in the roots exposed to the effluents. No significant differences were noted between the aged tap water and water collected from the reference site in relation to the parameters measured in most cases. The present study revealed that tested effluent samples contain substances that are cytotoxic and genotoxic to flora and these substances have not been eliminated by the effluent treatments.