

Odeigah, P.G.C., Nurudeen, A. O. and **Amund, O.O.** (1997)

Genotoxicity of Oilfield Wastewater in Nigeria.

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#### ABSTRACT

The general toxicity (root growth inhibition and malformation) and genotoxicity (induction of chromosome aberrations in root cells) of an oil field wastewater have been investigated by the *Allium* test. A series of 10 small bulbs of *Allium cepa* L. were cultivated in various concentrations of the wastewater, and after 48h one root tip from each bulb was harvested and processed for cytological studies by the aceto-orcein squash technique. After 96 h, mean lengths of root bundles were obtained and the Effect Concentration (EC) values calculated. Treatment with wastewater resulted in significant dose-dependent root growth inhibition. EC50 (96h) was 28.5% while a total phytotoxic effect was induced by the undiluted sample. The wastewater is mitodepressive and increases significantly the frequency of chromosome aberrations in root cells (sticky chromosomes, c-mitosis, spindle multipolarity, bridges and fragments). At lower concentrations c-mitosis was the most common aberration. The suitability of the *Allium* test in genotoxicity screening is highlighted and the impact and significance of positive results on the environment and human health are discussed.