

**The Assessment of Cytotoxicity and Genotoxicity of Tetracycline
Antibiotic in Human Blood Lymphocytes Using CBMN and
SCE Analysis, *in Vitro***

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ABSTRACT Tetracycline antibiotic, a widely used antimicrobial drug was tested for nuclear DNA damage in cultured peripheral blood lymphocytes in terms of chromosome alterations. The extent of cytogenetic damage, expressed as chromosome breakage and chromosome loss, was evaluated employing the Cytokinesis Block Micronucleus method (CBMN), the mutagenic effect of these antimicrobial drugs was investigated using Sister Chromatid Exchange (SCE) assay in cultured peripheral blood lymphocytes. Cytotoxicity was measured by evaluating mitotic activity (MA) and cytostatic effect was designated by measuring Proliferation Index and Nuclear Division index (NDI) in cultures. In this study, five different concentrations were used for tetracycline antibiotic. All the concentrations led to decrease in mitotic activity ($p < 0.05$). SCE frequency was significantly different from negative control, ($p < 0.05$) except at the concentration of $0.1 \mu\text{g/ml}$. All the concentrations induces the increase in MN frequency, but there is no significant difference between negative control and all the tested concentrations of tetracycline for micronucleus frequency ($p > 0.05$). Tetracycline antibiotic has a moderate genotoxic from the point of view MN induction. Our results indicate that tetracycline has a positive response and is potentially more toxic than being genotoxic in the present study.