

Cytogenetic Alteration Induced by Nickel and Chromium in Human Blood Cultures and its Amelioration by Curcumin

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ABSTRACT Tanners, welders and workers in various industries are exposed to acute and chronic toxicity of these heavy metals world wide. The present work is undertaken to evaluate the genotoxic effects of Ni and Cr at two different exposure intervals with a single dose and the amelioration of this toxicity using curcumin. Ni in form of nickel chloride ($4.216 \times 10^{-5}M$) and Cr as potassium dichromate ($1.36 \times 10^{-6}M$) were exposed for 24 and 69 hours to human blood lymphocyte cultures. The genotoxicity was measured by changes in acrocentric and telomeric association and C-anaphase. Results revealed a significant positive correlation between DNA damage and exposure time in Ni and Cr added cultures alone. Likewise it was also observed in cultures with combination of both pro-oxidants. Groups supplemented with curcumin ($3.87 \times 10^{-7}M$) showed insignificant cytogenetic damage indicating its protective role which was calculated as percentage amelioration. Thus these data proved curcumin as a protective agent against Ni and Cr induced genotoxicity.