



AT9900262

P 194

**COMPARISON BETWEEN DNA AND
CYTOGENETIC DAMAGE INDUCED IN HUMAN
LYMPHOCYTES****D.NOWAK, W.NIEDWIED AND A.CEBULSKA-
WASILEWSKA**Department of Radiation and Environmental Biology, Institute of
Nuclear Physics, Kraków, Poland

SCGE assay and classical cytogenetics were used in the studies on genotoxic effects of environmental mutagens in human peripheral blood lymphocytes. Alkaline comet assay was performed to elicit DNA damage and cytogenetic analysis was carried out to evaluate chromosomal damage in the first and second mitotic divisions after the *in vitro* treatment with o-phenylenediamine (concentration range 0-20 mM) and aminophenazines: 2,3-diaminophenazine and 2-amino-3-hydroxyphenazine (concentration range 0-300 μ M). The treatment on the whole blood and isolated lymphocytes applied to assess the induction of chromosomal and DNA damage respectively, was performed at 37°C. The chemical treatments caused exposure related increase in DNA damage (reported as Tail DNA and Tail moment) and in chromosomal damage (reported as the percentage of aberrant cells, total aberration frequency and sister chromatid exchange frequency) under the studied ranges of concentrations. Genotoxic potencies of the chemicals were due to their chemical structure; the highest effects were observed for DAP treatment, the lowest one for o-PDA treatment. Comparison of the results revealed a very strong correlation between DNA and chromosomal damage (from 0.90 to 0.97). A good agreement between these two types of measurement was also observed in previous studies on ionising radiation. On the base of these results we assume that the comet assay gives a very good prediction for the genotoxic potency of environmental agents.