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REACTION OF RADIOLYTICALLY FORMED HYDROPEROXIDES ON DNA AND PRECURSOR COMPOUNDS WITH REDOX-ACTIVE METAL IONS AND COMPLEXES

The exposure of oxygenated aqueous solutions of nucleic acids and related compounds to ionising radiation leads to the formation of peroxidic products (H_2O_2 and organic hydroperoxides). Analytical techniques [1] previously developed for determination of peroxides at concentrations of 10^{-6} – 10^{-5} mol dm^{-3} have allowed study of the post-radiolytic decay of such species in systems ranging in complexity from the pyrimidine bases to RNA and DNA.

The metal ion-catalysed decomposition of peroxides is a well documented phenomenon, and the possible involvement of contaminating metal ions in the decay processes was considered. The influence of both chelating agents and a variety of redox-active metal ions on peroxide stability has therefore been examined.

Preliminary data concerning the interaction of the glycopeptide antibiotic, bleomycin, with DNA hydroperoxide have been obtained. The results may have important implications with regard to synergism in the DNA-cleaving activities of bleomycin combined with ionising radiation.

REFERENCE

- [1] J.E. FREW, P. JONES, G. SCHOLLES, *Anal. Chim. Acta*, **155**, 139 (1983).



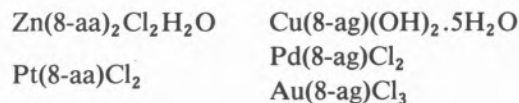
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TRANSITION METAL COMPLEXES WITH 8-AZAADENINE AND 8-AZAGUANINE

The biological properties of the azaderivatives of nucleic acid bases and nucleosides have been extensively studied and a number of them were found to be active chemotherapeutic agents. However very few reports have been published on complexes of metal ions with azapurines.

We have prepared and characterized a number of complexes of transition metal ions with 8-azaadenine and 8-azaguanine. These complexes were prepared by mixing equimolar aqueous solutions of the azapurines with the metal chloride or nitrate solution at an appropriate pH. On standing precipitated the complexes which were of the following composition:



These complexes were characterized by elemental analyses, conductivity and magnetic measurements, diffuse reflectance spectra and infrared spectroscopy. In the complexes prepared the 8-azapurines are acting as monodentate or bridging ligands, binding through the nitrogen of the imidazole ring.