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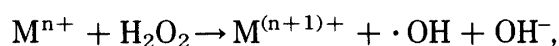
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**Copper (II) complexes activate hydrogen peroxide :
studies by ESR-spin trapping and TBA methods.***

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It has been reported that hydroxyl radical ($\cdot\text{OH}$) plays a major role in the indirect action of radiation on cells. Most of $\cdot\text{OH}$ generated *in vivo* is derived from the metal ion-dependent breakdown of hydrogen peroxide (H_2O_2) according to the following equation,



where M^{n+} is an unidentified endogenous metal ion, such as Fe (II), Cu (I), Ti (III) or V (IV).

It has been suggested that the rate constant for the reaction of Cu^+ with H_2O_2 is several orders of magnitude greater than that for Fe^{2+} and that Cu (II) complexes with some proteins, peptides and amino acids may coexist with H_2O_2 in the living body. We have studied the reactions of some Cu (II) complexes with H_2O_2 by use of ESR spin-trapping and thiobarbituric acid (TBA) methods.

It has been shown from the results that $\text{Cu}(\text{en})_2$ (en: ethylenediamine) has, among the Cu (II) complexes examined, the highest activity towards H_2O_2 to give $\cdot\text{OH}$, whereas Cu (II) complexes with polyamine-polycarboxylate such as edta (ethylenediaminetetraacetic acid) and dtpa (diethylenetriaminepentaacetic acid) do not react with H_2O_2 .

* 本報告は "Oxygen Radicals," Eds. by K. Yagi, M. Kondo, E. Niki and T. Yoshikawa, Elsevier, 1992, pp. 167-170. に発表

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