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### Reaction of chlorine and bromine with humic substance.

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Soil humic substance was obtained by extraction from leaf mould with water and then subjected to various chlorination/bromination procedures. The total amount (moles) of trihalo methanes (THMs) formed by bromination was larger than that by chlorination, suggesting that bromine is more reactive towards humic substance than is chlorine. Four bromine compounds were detected after chlorination, whereas 12 brominated compounds were formed by bromination after prechlorination. This suggests that some chlorinated products subsequently reacted with the bromine, forming brominated compounds

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### Cadmium-Binding Protein (Metallothionein) in Carp.

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The inductive contents of Cd-binding protein (CBP) increased in hepato-pancreas (HP), kidney (K), gills (G) and gastrointestinal tract of carp (*Cyprinus carpio*) with the duration of Cd exposure. Two CBPs isolated from each organs, had mercaptide bond, high cysteine contents, but no aromatic amino acids or histidine. These CBPs were identified as metallothionein (MT). Between HP MT-I, II and K MT-II, and a slight difference in antigenic determinant was observed among them. In the nontreated carp, MT was present in the acinar cells of HP and renal convoluted tubules. In the Cd-treated carp, MT was present in the nuclei, sinusoids, and extracellular space of HP, too. The lethal effect of Cd to carp decreased by pretreatment for low concentration of Zn or Cd. The MT contents in HP and K induced by the pretreatment related to this effect.

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### Screening Test for Carcinogenicity of Chlorhexidine Digluconate and Its Metabolites.

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When bactericidal antiseptics are discharged into the environment, they are degraded but their behavior has not been cleaned. In this paper, carcinogenicity of chlorhexidine digluconate and its seven kinds of metabolites *p*-chloroaniline (CA<sub>N</sub>), *p*-chlorophenol (CPh), *p*-chlororoacetoanilide (CA<sub>A</sub>), aniline (AN), phenol(Ph), pyrocatechol(Pc) and pyrogallol(Pg) were screened with Ames test and liquid rec-assay based on Ashby's report. Ames test was performed with *S. typhimurium* TA 98 and TA 100, and liquid rec-assay was performed with *B. subtilis* H-17 (Rec<sup>+</sup>) and M-45 (Rec<sup>-</sup>). Pg was positive on Ames test and liquid rec-assay, and recognized as positive carcinogenic compound. CPh was positive on Ames test with S-9 mix (+). Pc was found to have positive DNA injury by liquid rec-assay with S-9 mix (+). These results suggest the necessity of discarding counterplan of drugs.