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PS5.3 — TH

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MODELS FOR METAL-PROTEIN

INTERACTION:

COPPER(II) COMPLEXES WITH A CYCLIC PEPTIDE HAVING SIDE-CHAIN IMIDAZOLYL AND CARBOXYL GROUPS

Considerable effort has been devoted to the study of macrocyclic ligands and their metal complexes. Thus, introduction of a metal ion into functionalized cyclic peptides may be an appropriate model for the studies of binding by metalloenzymes. Such cyclic peptides can be designed to incorporate amino acid side chains that are important for the function of various enzymes. For example, the imidazolyl and the carboxyl groups of histidine

and glutamic acid seem to play an important role in the coordination of proteins or naturally occurring peptides to metal ions. The investigation of simple cyclic peptides having side-chain imidazolyl and carboxyl groups as model might be of significant value in elucidating the details of enzyme mechanisms, particularly in aqueous solution.

We chose to synthesize cyclo-(Gly-L-Glu-Gly-L-His-Gly-Gly-L-His-Gly) (hereinafter denoted G5H2Gu). Complexation of G5H2Gu with the transition metal ion Cu(II) in aqueous solution over a wide pH range and with different peptide/metal ratios, has been studied by using carbon-13 and proton NMR, ESR and Visible Spectroscopy.

The results obtained are discussed in terms of different complexes depending on the pH and are compared with a cyclic peptide having different side-chains and a different cavity size.



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THE ROLE OF THE TOSYL GROUP ON THE COORDINATION ABILITY OF N-PROTECTED AMINOACIDS. SOLID STATE BEHAVIOR OF N-TOSYLVALINATE COPPER(II) COMPLEXES

Among N-protected aminoacids, as N-acetyl-, N-benzoyl-, N-benzyloxycarbonyl and N-toluenesulfonyl-aminoacids, only the latter class of deri-