Histamine H_2 antagonists: powerful ligands for copper(II). Reinterpretation of the famotidine-copper(II) system.

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Streszczenie

Potentiometric, absorption, EPR and ^{13}C NMR spectroscopic studies performed for a series of effective H_2 antagonists of histamine (imidazole-4-ethanamine) including effective antiulcer drug famotidine, have shown that all ligands containing a guanidine–thiazole fragment co-ordinate copper(II) ions at pH around 2 using two nitrogen donors. The guanidine moiety having acidic nitrogen (log *K* 1.5–3.0) acts as an anchor and the thiazole nitrogens with protonation constants around p*K* 6.7 very efficiently form a chelate ring. The adjacent thioether sulfur may also be involved in metal-ion binding, contributing to the stabilities of the complexes formed. At higher pH an amine terminal fragment is involved in co-ordination *via* one of its nitrogens leading to a {N,N,S,N} binding set. Comparison of all results obtained for the seven compounds studied strongly suggests that only equimolar species can be detected in this system. This allows a convincing reinterpretation of earlier studies on the copper(II)–famotidine system.

Adres publiczny

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