

A family of hydroxypyrrone ligands designed and synthesized as iron chelators.

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The use of chelating agents for iron and aluminum in different clinical applications has found increasing attention in the last thirty years. Desferal, deferiprone and deferasirox, chelating agents nowadays in use, are based on hydroxamic groups, hydroxyl-substituted pyridinones or aromatic ring systems. With the aim of designing new chelators, we synthesized a series of kojic acid derivatives composed by two kojic units joined by linkers variously substituted. The huge advantages of these molecules are that they are easy and cheap to produce. Preliminary works on complex formation equilibria of the first group of ligands with iron and aluminium highlighted extremely good pMe values and gave evidence of the ability to scavenge iron from inside cells. On these bases a second set of bis-kojic ligands, whose linkers between the kojic chelating moieties are differentiated both in terms of type and size, has been designed, synthesized and characterized. The structural characterization of these new ligands is presented, and the protonation and iron(III) complex formation equilibria studied by potentiometry, UV-Visible spectrophotometry, electrospray ionization mass (ESI-MS) and ^1H NMR spectroscopy will be described and discussed.

Słowa kluczowe

Fe(III), Hydroxypyrrones, Kojic acid, Solution equilibria, Synthesis, X-Ray structure

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