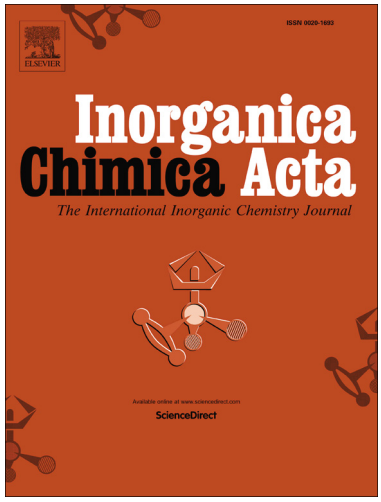

Research paper

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Synthesis, structures and biological activity of copper(II) and zinc(II) Schiff base complexes derived from aminocyclohexane-1-carboxylic acid. New type of geometrical isomerism in polynuclear complexes.

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ABSTRACT

Four new Cu(II) complexes and one Zn(II) complex of the formula $\{Cu(salChx)\}_{2n}\cdot nCH_3OH$, [Cu(salChx)(imidazole)], [Cu(salChx)(pyrazole)], $[Zn_2(\mu\text{-}salChx)_2(CH_3OH)_2]$ and $[Cu_2(\mu\text{-}MeOsalChx)(MeOsalChx)(H_2O)_2]_4\cdot 3H_2O$ (where salChx is dianion of Schiff-base ligand obtained by condensation of salicylaldehyde with 1-aminocyclohexane-1-carboxylic acid and MeOsalChx is dianion of Schiff-base ligand obtained by condensation of 3-methoxysalicylaldehyde with 1-aminocyclohexane-1-carboxylic acid) have been synthesized and crystallographically fully characterised. Four different geometrical isomers $[Cu_2(\mu\text{-}MeOsalChx)(MeOsalChx)(H_2O)_2]$ constitute the latest coordination compound together with three crystalline water molecules. They represent a new type of geometrical isomerism in coordination chemistry. Antimicrobial and antiradical activities of all five complexes were assayed.

Key words: copper(II); zinc(II), Schiff base complexes; aminocyclohexane-1-carboxylic acid; SOD-mimic activity, antimicrobial activity.

1. Introduction

Schiff bases and their metal complexes play an important role in the bioinorganic chemistry due to their structural diversity and wide spectrum of their biological activities. A number of Cu(II) and Zn(II) complexes with Schiff bases have been already studied for antibacterial [1-5], antimycotic [6-10], cytostatic and cytotoxic activity [11-14], interaction with DNA [15-18], radical scavenging effect [19-21], and enzyme inhibition [22-26].