

Effect of heterocyclic nitrogen donor ligands on coordination behavior of weakly coordinating arylsulfonate: synthesis, characterization and antimicrobial activities of [Cu( $\beta$ -pic)<sub>4</sub>(2-Cl-5-nitrobenzenesulfonate)<sub>2</sub>] (methanol) and [Cu( $\gamma$ -pic)<sub>4</sub>(2-Cl-5-nitrobenzenesulfonate)<sub>2</sub>].

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Two new copper(II) complexes [Cu( $\beta$ -pic)<sub>4</sub>(2-Cl-5-nitrobenzenesulfonate)<sub>2</sub>](CH<sub>3</sub>OH) (1) and [Cu( $\gamma$ -pic)<sub>4</sub>(2-Cl-5-nitrobenzenesulfonate)<sub>2</sub>] (2) have been synthesized by reacting appropriate starting materials in methanol:water (v/v 4:1). Both newly synthesized complexes have been characterized on the basis of elemental analyses, spectroscopic techniques (FT-IR, UV-Vis, EPR) and single crystal X-ray structure determination (complex 1). The structural analysis of complex 1 revealed the existence of unusual coordination behavior of arylsulfonate towards copper(II) center in presence of heterocyclic N-donor ligands resulting in elongated octahedral geometry around the metal. The EPR spectroscopy of complexes 1 and 2 unambiguously proved a similar coordination of four picolines in Cu(II) xy plane. Antimicrobial studies of both the complexes 1 and 2 were performed against Gram positive, MRSA (Methicillin-Resistant Staphylococcus aureus) as well as Gram negative (Escherichia coli, Klebsiella pneumoniae) bacteria. The activity was investigated by using both Agar well diffusion as well as MIC assay. Both the complexes show significant bactericidal activity against all the pathogenic strains in comparison to ampicillin, a broad spectrum antibiotic against Gram positive and Gram negative bacteria.

Słowa kluczowe

2-Chloro-5-nitrobenzenesulfonate, Spectroscopic techniques, single crystal X-ray, Broad spectrum antibacterial

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