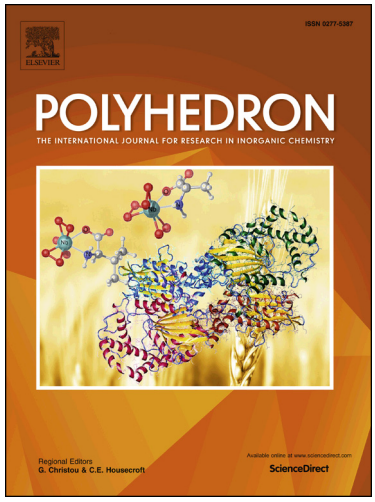

Palladium(II) complexes with thioether containing azophenol ligands: synthesis, characterization, X-ray structure and DNA binding study

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Palladium(II) complexes with thioether containing azophenol ligands: synthesis, characterization, X-ray structure and DNA binding study

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Abstract

The new palladium(II) complexes [Pd(L^1/L^2)Cl] (**1**/**2**), with ONS donor azo–thioether ligands (HL^1/HL^2), have been successfully synthesized. The complexes were thoroughly characterized by several spectroscopic techniques. The distorted square planar geometries of the complexes were confirmed by single crystal X-ray analysis. The electronic structures, redox and spectral properties are interpreted by DFT and TDDFT calculations. The interaction of the complexes with CT DNA was investigated by the UV-vis method and the binding constant was found to be 3.56×10^4 M^{-1} for **1** and 5.72×10^4 M^{-1} for **2**. A competitive binding titration with ethidium bromide (EB) by the fluorescence titration method revealed that the complexes efficiently displace EB from the EB-DNA system and the Stern-Volmer dynamic quenching constant, K_{sv}, was found to be 1.28×10^4 M^{-1} and 2.04×10^4 M^{-1} for **1** and **2** respectively.

Keywords: Palladium(II) complex; ONS donor azo–thioether ligand; X–ray structure; Electrochemistry; DNA binding; DFT computation.

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