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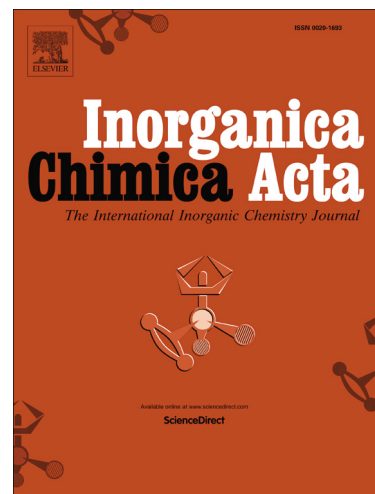
Complexation of Dichloro(ethylenediamine)palladium(II) with 1-Hydroxyethylidene-1,1-diphosphonic Acid

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Complexation of Dichloro(ethylenediamine)palladium(II) with 1-Hydroxyethylidene-1,1-diphosphonic Acid

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Highlights

- Interaction of [Pd(en)Cl₂] with 1-hydroxyethylidene-1,1-diphosphonic acid was studied
- Formation constants were calculated for complexes [Pd(en)Cl₂] with diphosphonic acid
- All complexes were characterized by UV-Vis and ³¹P NMR spectroscopy
- The structure of the binuclear complex was determined by single-crystal X-ray diffraction

Abstract

Formation of the complex between [Pd(en)Cl₂] (en = ethylenediamine) and 1-hydroxyethylidene-1,1-diphosphonic acid (HEDP, H₄L) was studied by pH-potentiometry, UV-Vis spectrophotometry and ³¹P NMR spectroscopy in aqueous solutions containing C_{KCl} = 0.15 mol L⁻¹ and 0.004 mol L⁻¹, which corresponds to the concentration of chloride ions in intercellular and intracellular fluids. The formation constants were calculated for [Pd(en)HL]⁻, [Pd(en)L]²⁻ and {[Pd(en)]₂L} complexes. In combination with data reported in the literature, they were used for deriving distribution curves for the corresponding aqua-, hydroxo- and chloro-substituted complexes of the [Pd(en)]²⁺ moiety. The binuclear complex {[Pd(en)]₂L} was synthesized and characterized by elemental analysis and NMR spectroscopy. The structure of this complex in which the HEDP bridges two [Pd(en)]²⁺ moieties has been determined by X-ray crystallography.

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