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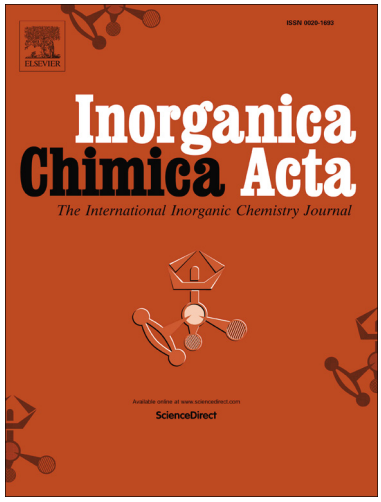

Research paper

Synthesis and characterization of new palladium complexes based on polydentate chiral Schiff base and amines ligands derived from (+)-2-hydroxypinan-3-one

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Synthesis and characterization of new palladium complexes based on polydentate chiral Schiff base and amines ligands derived from (+)-2-hydroxypinan-3-one

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Abstract

Seven novel palladium complexes of the type $[Pd(HL)Cl_2]$ and [Pd(L)Cl] containing chiral pinane ligands (HL= 3-[(2-aminoethyl)imino]-pinane-2-ol; 3,3'-(ethylenediimino)*bis*-pinane-2-ol; *cis*-3-(2-aminoethylamino)-pinane-2-ol; *cis*-3,3'(ethylenediamino)bis-pinane-2-ol; *trans*-3,3'(ethylenediamino)bis-pinane-2-ol; 3-[2-(2-hydroxybenzylamino)ethylamino]-pinane-2-ol; L=3-[2-(3,5-di-*tert*-butyl-2-hydroxybenzylidene)amino)ethylimino]pinane-2-ol)) were synthesized in good yields from the direct reaction of chiral nitrogen ligands with Li_2PdCl_4 in MeOH. These synthesized complexes were characterized by means of elemental analysis, FT-IR, multidimensional and multinuclear NMR spectroscopic methods.

Keywords*:* Palladium complexes; chiral pinane ligands; diimines; diamines; ligands of salen type, chelate complexes, NMR

1. Introduction

It is known that derivatives of ethylenediamine are widely used in inorganic and coordination chemistry as ligands in the synthesis of complexes of various transition metals [1-5], including palladium and platinum [6-8]. Derivatives of ethylenediamine containing chiral terpene fragments, are well proven as effective chiral ligands in asymmetric catalysis [9-11]. In recent time, α-pinene nitrogen derivatives have been used as substrates in the synthesis of enantiomerically pure compounds [12,13], chiral auxiliaries [14, 15], and ligands for asymmetric synthesis [16–20]. Platinum and palladium complexes, containing diamines ligands, have been extensively studied and used in oncological practice [21-25]. Palladium complexes with different ligands show high antibacterial activity [26-29].

During the last two decades, many palladium complexes were tested practically in all the areas of classic palladium catalysis [30-38]. Especially impressing achievements are related to the catalysis by palladium complexes of Heck and cross-coupling reactions [39-42].

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