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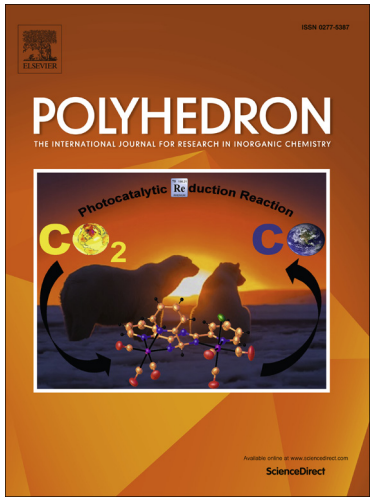

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Polyhedron

Synthesis and antiproliferative activity of ionic platinum(II) triphenylphosphino complexes

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Abstract: Ionic platinum(II) complexes $[PtCl(PPh_3)(L\wedge L)][BF_4]$ {L∧L = 2,2'-bipyridyl (**1**) 1,10-phenanthroline (**2**)} and $[PtCl(PPh_3)(L)_2][BF_4]$ {L = pyridine (**3**), dimethyl sulfoxide (**4**)} were synthesized by dehalogenation of *cis*-$[PtCl_2(PPh_3)(NCMe)]$, followed by reaction with the suitable ligand. Chelating nitrogen ligands L∧L afforded single products, which were structurally characterized. In the other cases mixtures of geometric (L = pyridine) and/or coordination (L = dimethyl sulfoxide) isomers were observed in solution. In these cases the structures of the less soluble isomers were obtained via single crystal X-ray diffraction. All the complexes were tested *in vitro* for their antiproliferative activity on three human tumor cell lines: MSTO-211H, HeLa and HepG2.

Keywords: platinum(II); triphenylphosphine; ionic complexes; chelating ligands; antiproliferative activity.

1. Introduction

Following the early discover of cisplatinum anticancer properties [1], hundreds of new platinum(II) complexes have been synthesized and tested *in vitro* for their antiproliferative activity. Among them, ionic, monofunctional complexes were originally disregarded as inactive [2], but have recently gained renewed interest as non-conventional anticancer agents displaying ranges of applicability and mechanisms of action other than classical agents [3]. The most studied