The two faces of platinum hydrospirophosphorane complexes. Not only relevant catalysts but cytotoxic compounds as well.

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Streszczenie

Platinum complexes [$PtCl_2$(L)] L = **L1**, **L2** with symmetrical HP($OCH_2CMe_2NH)_2$ (**L1**) and unsymmetrical HP($OCMe_2CMe_2O$)(OCH_2CMe_2NH) (**L2**) hydrospirophosphorane (HSP) ligands were demonstrated to play a dual role of catalysts and cytotoxic compounds as well. The structure of new complex [$PtCl_2$(**L2**)] was confirmed by physicochemical and spectroscopic methods, as well as single X-ray diffraction studies for [$PtCl_2${P ($OCMe_2CMe_2O$)($OCH_2CMe_2NH_2$)}]. HSP ligand coordinated to the platinum center in bidentate κ^2-P,NH_2 chelating mode of fashion. Both complexes were found to exhibit catalytic activity for Heck cross-coupling reactions of iodobenzene with substituted styrenes, with good conversion and yield of stilbenes. Moreover, complexes have been applied as excellent catalysts for highly regioselective hydrosilylation of aromatic and aliphatic terminal olefins, and acetylenes terminal and internal as well. On the other hand, the preliminary biological studies revealed that in the presence of foretinib, drug candidate in clinical trials for the treatment of cancer, platinum complexes revealed increased synergistic effect and efficiently decreased the number of viable cells of triple negative breast cancer MDA-MB-231 cell line.

Słowa kluczowe

breast cancer, Heck-cross-coupling, hydrosilylation reaction, phosphorous ligands, platinum complexes

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