

Ruthenium(II) piano stool coordination compounds with aminomethylphosphanes : synthesis, characterisation and preliminary biological study *in vitro*.

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Streszczenie

Reaction of $\{[\text{Ru}(\eta^6\text{-p-cymene})\text{Cl}]_2(\mu\text{-Cl})_2\}$ (1) with aminomethylphosphane derived from morpholine ($\text{P}\{\text{CH}_2\text{N}(\text{CH}_2\text{CH}_2)_2\text{O}\}_3$ (A), $\text{PPh}_2\{\text{CH}_2\text{N}(\text{CH}_2\text{CH}_2)_2\text{O}\}$ (B)) or piperazine ($\text{P}\{\text{CH}_2\text{N}(\text{CH}_2\text{CH}_2)_2\text{NCH}_2\text{CH}_3\}_3$ (C), $\text{PPh}_2\{\text{CH}_2\text{N}(\text{CH}_2\text{CH}_2)_2\text{NCH}_2\text{CH}_3\}$ (D)) results in four new piano stool ruthenium(II) coordination compounds: $[\text{Ru}(\eta^6\text{-p-cymene})\text{Cl}_2(\text{A})]$ (2A), $[\text{Ru}(\eta^6\text{-p-cymene})\text{Cl}_2(\text{B})]$ (2B), $[\text{Ru}(\eta^6\text{-p-cymene})\text{Cl}_2(\text{C})]$ (2C) and $[\text{Ru}(\eta^6\text{-p-cymene})\text{Cl}_2(\text{D})]$ (2D). Every complex was fully characterized using spectroscopic methods (^1H , $^{13}\text{C}\{^1\text{H}\}$, $^{31}\text{P}\{^1\text{H}\}$ NMR and ESI-MS), elemental analysis, X-ray single crystal diffraction and DFT calculations. Preliminary studies of *in vitro* cytotoxicity on the A549 (human lung adenocarcinoma) and MCF7 (human breast adenocarcinoma) cell lines revealed 2A-2D activity in the same order of magnitude as in the case of cisplatin. Additionally, the study confirmed the ability of 2A-2D to interact with DNA helix and transferrin.

Słowa kluczowe

aminomethylphosphanes, cytotoxicity, organometallic chemistry, ruthenium

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