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World Congress on CHEMISTRY AND CHEMICAL TECHNOLOGIES

February 09, 2022 | Webinar

Synthesis and cytotoxicity of palladium, platinum and silver complexes containing oxazolines

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Abstract

Organometallic complexes containing oxazoline ligands, particularly chiral oxazolinyl palladium and platinum complexes can be used as important anticancer reagents in the field of medicine. The purpose of this study is to describe the method of synthisis of six novel chiral organometallic complexes, which from the reaction of different oxazoline ligands [[(R/S)-1,4-R1Ox]2C6H4 (R1: D/L-CH(CH3)2 or D-CH2Ph) and Zn(CyanoBox)2] with PdCl2, Pt(DMSO)2Cl2 or Pt(DMSO)2(NO3)2 in good yields (68-92%): binuclear cyclometalated complex {Pd[(S,S)-1,4-i-PrOx]2C6H4}2Cl4}, 1; Pt(CyanoBox)(DMSO)Cl, 2;{[Pt(R,R)-1,4-phenylOx]2C6H4},3;3{Pt[(R,R)-1,4 phenylOx]2C6H4}212+•PhCOO^{-}•11NO3^{-}, binuclear cyclometalated complex {Pt[(R,R)-1,4-benzyl]2 C6H4}2•3Cl^{-}• 9NO3^{-}, 4; polymer chains {[Pt(R,R)-1,4-phenylOx]C6H4}•NO3^{-}, 5; and polymeric silver species Zn(CyanoBox)2•AgNO3•CHCl3, 6. Desirablely, the complexes 1–6 showed cytotoxic effects against human tumor cell lines, including a multidrug-resistant subline.

Biography

Mei Luo was born in 1969 in Bozhou, Anhui Province, P.R.China. She received her B.S. and M.S. degrees in chemistry from Hefei University of Technology and obtained a Ph.D at the University of Science and Technology of China in 2002. She then studied as a postdoctoral fellow at Beijing University. At 2014 and 2017, she further studied as a visiting scholar at the university of Utah and UNC in accordingly. Currently, she is an associate professor at Hefei University of Technology, where her research interests include organic and organometallic chemistry and asymmetric catalysis.