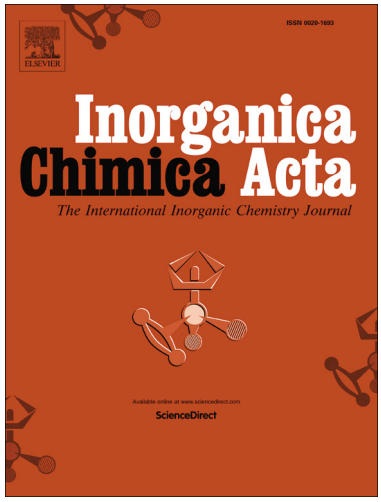

Research paper

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Synthesis, structure and catalytic alcohol oxidation by ruthenium(III) supported by Schiff base and triphenylphosphine ligands

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Treatment of $[RuCl_2(PPh_3)_3]$ with two equiv. bi-dentate Schiff base *N*,*O*-LH-Cl (*N*,*O*-LH-Cl = 2[(3-chloro-phenylimino)-methyl]-phenol) or *N*,*O*-LH-NO_2 (*N*,*O*-LH-NO_2 = 2[(4-nitro-phenylimino)-methyl]-phenol) in the presence of triethylamine afforded *cis*-$[RuCl(PPh_3)(\kappa^2\text{-}N,O\text{-L-Cl})_2]$ (**1**) and *trans*-$[RuCl(PPh_3)(\kappa^2\text{-}N,O\text{-L-}NO_2)_2]\cdot Et_2O$ (**2**), respectively. Reactions of $[RuCl_2(PPh_3)_3]$ and equal equiv. tetra-dentate Schiff bases gave corresponding ruthenium(III) complexes $[RuCl(PPh_3)(salen)]$ (**3**) (H_2salen = *N*,*N'*-disalicylidene-1,2-ethanediamine), $[RuCl(PPh_3)(salipn)]\cdot 2CH_2Cl_2$ (**4**) (H_2salipn = *N*,*N'*-disalicylidene-1,2-(1-methyl)ethanediamine), $[RuCl(PPh_3)(salpn)]\cdot CH_2Cl_2$ (**5**) (H_2salpn = *N*,*N'*-disalicylidene-1,2-propanediamine), $[RuCl(PPh_3)(salphen)]\cdot CH_2Cl_2$ (**6**) (H_2salphen = *N*,*N'*-disalicylidene-1,2-phenyldiamine), $[RuCl(PPh_3)(saltoln)]\cdot CH_2Cl_2$ (**7**) (H_2saltoln = *N*,*N'*-disalicylidene-1,2-tolyldiamine) and $[RuCl(PPh_3)(salcyn)]$ (**8**) (H_2salcyn = *N*,*N'*-disalicylidene-(*R*,*R*)-1,2-cyclohexanediamine). The molecular structures of complexes **1**–**5** and **7** have been determined by single-crystal X-ray crystallography. The catalytic oxidation properties of ruthenium(III) complexes **1**–**8** were tested towards alcohols in the presence of *N*-methylmorpholine-*N*-oxide.

Keywords: Ruthenium(III) complex; Schiff base; Synthesis; Crystal structure; Catalytic oxidation

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