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Metal complexes of 3,4,5,6-tetraphenyl-2,2'-bipyridine

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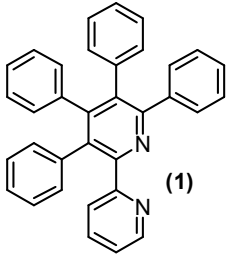
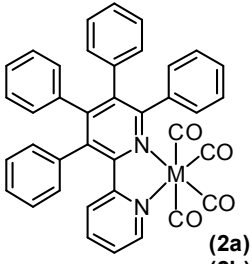
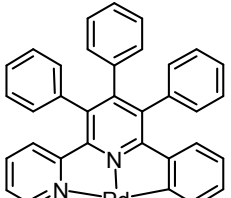
Recently our group reported the synthesis of polyphenylene compounds containing pyrimidyl groups. We are interested in pyridyl-centred polyphenylene compounds containing pyridyl groups as they can form metal complexes or coordination polymers depending on the number of pyridyl groups present in the molecule. Here we report the synthesis of 3,4,5,6-tetraphenyl-2,2'-bipyridine (**1**) (HL) and its complexes with Mo, W and Pd. The Ligand (**1**) was prepared by reacting tetraphenylcyclopentadienone with 2-cyanopyridine. The reaction of (**1**) with $[Mo(CO)_4(piperidine)_2]$ gave the complex $[Mo(CO)_4(HL)]$ (**2a**) in which the ligand (**1**) is bidentate. The analogous tungsten-complex (**2b**) was synthesised by treating (**1**) with $[W(CO)_4(piperidine)_2]$. Treatment of (**1**) with $[Pd(OAc)_2]$ resulted in the formation of an *ortho*-metallated square-planar palladium(II) complex [Pd(OAc)(L)] (**3**) containing an anionic terdentate (NNC) ligand. Treatment of (**3**) with NH_4Cl gave the chloride-complex [PdCl(L)] (**4a**) which is insoluble in common organic solvents. Treatment of (**3**) with NaI afforded the slightly soluble iodide-complex [PdI(L)] (**4b**).



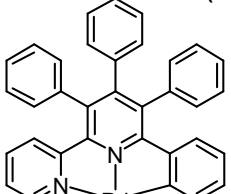
(1)



M
(2a) Mo
(2b) W



(3)



X
(4a) Cl
(4b) I

Conclusion

The Ligand (**1**) was prepared and it has shown two coordination modes – (i) a bidentate ligand through both N-donors and (ii) an anionic (NNC) terdentate ligand.

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