SYNTHESIS, CHARACTERIZATION AND REACTIVITY OF Pt(II) PCP PINCER COMPLEXES

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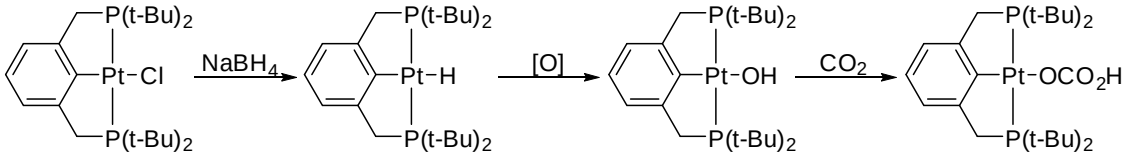
PCP pincer complexes were first synthesized by Moulton and Shaw in 1976. [1] Since then a plethora of new pincer complexes with various applications were reported. [2] We will present the chemistry of PCP pincer complex 1 and its analogues. Hydride 2 was synthesized by reduction of chlorido complex 1 with $NaBH_4$ and its structure was determined by single-crystal X-Ray diffraction. In the presence of oxygen hydride 2 in solution slowly oxidizes to hydroxide 3. Upon exposure to air hydroxide 3 readily uptakes CO_2 from atmosphere to form a bicarbonato complex 4 whose crystal structure was also elucidated. Until now only one crystal structure with bicarbonate anion as a monodentate ligand on Pt(II) center has been reported. [3] Crystallization of PCP complexes from acidic chloride solutions leads to the formation of a trinuclear 24-membered macrocyclic complex where $[PtCl_2]$ moieties are bridged by phosphine arms of the pincer ligands.



1 **2** **3** **4**

X-ray crystal structure of **2**
50 % probability thermal ellipsoids

[1] Moulton, C. J.; Shaw, B. L. Transition metal–carbon bonds. Part XLII. Complexes of nickel, palladium, platinum, rhodium and iridium with the tridentate ligand 2,6-bis[(di-t-butylphosphino)methyl]phenyl. *J. Chem. Soc., Dalton Trans.* **1976**, 1020–1024.

[2] Valdés, H.; García-Eleno, M. A.; Canseco-Gonzalez, D.; Morales-Morales, D. Recent Advances in Catalysis with Transition-Metal Pincer Compounds. *ChemCatChem* **2018**, *10*, 3136–3172.

[3] Ito, M.; Ebihar, M.; Kawamura, T. Preparation and structure of $[PhPt(OCO_2H)(PEt_3)_2]$ and $[PhPt(OH_2)(PEt_3)_2]BF_4$. *Inorg. Chim. Acta.* **1994**, *218*, 199-202.