(3c) *trans* Pt

E2-22 Chelate assisted aryl halide coordination to Ru(II)

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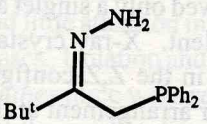
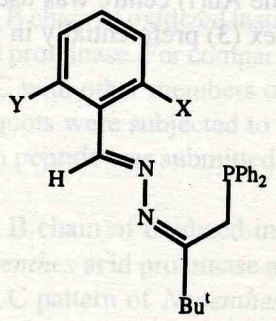
Coordination chemistry of N-,P-, or S-donor ligands was known for >100 years but that of halocarbons (or organic halides) has a short history, since 1980s. The main reason for this is that the halogen of a halocarbon is a very poor donor. The order of donor ability of the halogen of halocarbons decreases in the following way, RI>RBr>RCl>RF>. The synthesis of a ligand system which, when chelated to Ru (II) through P and N, forces the halogen to coordinate to Ru(II) is presented. The azines (**2a**) -(**2d**) were prepared by condensing (**1**) with the appropriate aryl aldehyde. Treatment of (**2a**) with $[RuCl_2(PPh_3)_3]$ gave (**3a**). The phosphorus NMR spectrum of (**3a**) showed a doublet for P_B with coupling ot P_A and a doublet of triplets for P_A with coupling to both flourines and P_B. The fluorine NMR spectrum supported this observation. In the proton NMR spectrum, the CH_2 protons are equivalent and coupled only to

P_A, $^2J(P_AH)$=14.4 Hz and the HC=N proton is coupled to P_B, $^4J(P_BH)$= 6.8Hz. X-ray crystal structure determination confirmed the proposed structure and the fluorine coordination, the Ru-F bond distance is 2.366 Å. Similarly, treatment of (**2b**), (**2c**) or (**2d**) with $[RuCl_2(PPh_3)_3]$ gave (**3b**), **3c**) or (**3d**), respectively. Their IR, ^1H and ^{31}P NMR data are very similar to those of (**3a**), indicating that (**3b**), (**3c**) and (**3d**) have very similar structures.

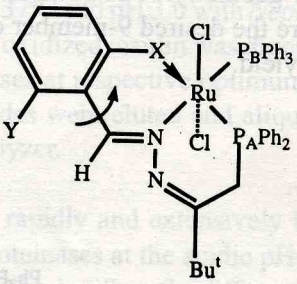


(1)



(2a) — (2d)

	X	Y
a	F	F
b	Cl	H
c	Br	H
d	I	H



(3a)— (3d)