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COMPOUNDS OF SC_6F_5 AND SCF_3 WITH PLATINUM METALS

Diana Cruz and Hugo Torrens

Division de Estudios de Posgrado, Facultad de Quimica, UNAM, Ciudad Universitaria, 04510 Mexico City D.F. (Mexico)

The chemistry of coordination compounds in which the metal atom is bonded only to fluoro-sulphurated ligands is relevant to several fields, particularly to catalysis and bioinorganics.

In this area, octahedral compounds of the type $[M(SEt_2)_3(SC_6F_5)_3]$ where M= Ru(III), Rh(III) and Ir(III) have been prepared and studied. The presence of the fluorinated pseudohalide diminishes the relative stability of these compounds compared with that of the chloride analogs for example, and favors the formation of the sulphur bridged polymeric compounds $[M(SC_6F_5)_3]_n$.

Square-planar complexes of Pd(II) and Pt(II) containing thio- and dithioethers with the general formula $[M(SR_2)_2(SR_f)_2]$ or $[M(R\underline{S}RSR)(SR_f)_2]$ where R= CH_3, C_2H_5, C_6H_5 or C_6F_5; $\underline{R}$= C_2H_4, $CH(CF_3)CH_2$ or $CH(CF_3)CH(CF_3)$ and R_f= CF_3 or C_6F_5, have been studied. Temperatures for inversion of configuration at sulphur centers suggest the following order of electronegativities: $CF_3S^- > Cl^- > C_6F_5S^- > Br^-$.

A different class of compounds studied are those capable to react with molecular N_2. Among these, $[OsCl(N_2)(SC_6F_5)P_3]$ P=phosphine, is the first example of a fluorinated N_2-complex and one of the very few known with a metal-sulphur bond. in all cases, the nitrogen molecule is <u>trans</u> to the halogen and every attempt to replace it ended up with loss of the N_2 ligand.