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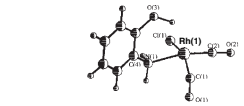
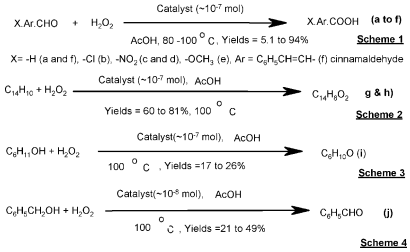
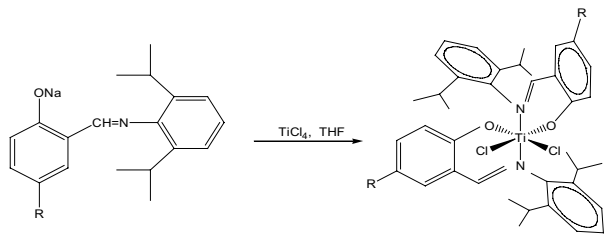


The complexes $[Rh(CO)_2ClL]$(**1**), where L = 2-aminophenol (**a**), 3-aminophenol (**b**) and 4-aminophenol (**c**), have been synthesized and characterized. The ligands are coordinated to the metal centre through an N-donor site. The complexes **1** undergo oxidative addition (**OA**) reactions with various alkyl halides (**RX**) like CH_3I, C_2H_5I and $C_6H_5CH_2Cl$ to produce Rh(III) complexes of the type [Rh(CO)(COR)XClL], where R = $-CH_3$(**2**), $-C_2H_5$(**3**), X = I; R = $C_6H_5CH_2-$ and X = Cl (**4**). The **OA** reaction with CH_3I follows a two-stage kinetics and shows the order of reactivity as **1b** > **1c** > **1a**. The minimum energy structure and Fukui function values of the complexes **1a–1c** were calculated theoretically using a DND basis set with the help of $Dmol^3$ program to substantiate the observed local reactivity trend. The catalytic activity of the complexes **1** in carbonylation of methanol, in general, is higher (TON 1189–1456) than the species $[Rh(CO)_2I_2]^-$ (TON 1159).



Without following tedious separation, *in-situ* prepared sodium ferrate oxidizes aromatic alcohols and aldehydes to their corresponding carbonyl compounds or aromatic acids, respectively, in excellent yields under microwave irradiation, when adsorbed on montmorillonite in the presence of copper nano-particles. Aromatics with amino or hydroxy groups polymerize.

Three substituted salicylaldimine ligands (1a, 2a, 3a) and their titanium complexes bis[N-(5-nitrosalicylidene)-2,6-disopropylanilinato]titanium(IV)dichloride (1), bis[N-(5-chlorosalicylidene)-2,6-diisopropylanilinato]titanium(IV)dichloride (2) and bis[N-(5-bromosalicylidene)-2,6-diisopropylanilinato]titanium(IV)dichloride (3) were synthesized? characterized and used as catalysts for ethylene polymerization in the presence of MAO .Their catalytic activities are much higher than that of corresponding complex with no substituent in the 5-position of the salicylaldiminato ring. All these complexes are favorable for producing polyolefins with a broad molecular weight distribution and high melting points



1 (R = NO_2), **2** (R = Cl), **3** (R = Br)

Synthetic route of novel titanium complexes **1 - 3**

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Section: Main Group Metal Compounds