

## Structure of Hydrido(carboxylato)Ir(III) Complexes and Catalytic Symmetric Hydrogenation of Imines

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Recently, we have succeeded in the isolation and characterization of  $[\text{IrCl}(\text{binap})]_2$  **1** {binap = 2,2'-bis(di-phenylphosphino)-1,1'-binaphthyl}. [1] Complex **1** reacted easily with methanol and water to give the oxidative addition products. [2] Here we report on the highly diastereoselective oxidative addition of carboxylic acids to  $[\text{IrCl}(\text{binap})]_2$ , which gave mononuclear hydrido( $\eta^2$ -carboxylato)Ir(III) complexes.

Reaction of (*S*)-**1** with several carboxylic acids proceeded smoothly at r.t. to give  $[\text{IrCl}(\text{H})(\text{O}_2\text{CR})\{(\text{S})\text{-binap}\}]$  (*S*)-**2** (R = CH<sub>3</sub>, *p*-tolyl, etc.) as air-stable almost colorless solids in good yields. The absolute configuration of  $[\text{IrCl}(\text{H})(\text{O}_2\text{CC}_6\text{H}_4\text{CH}_3\text{-4})\{(\text{S})\text{-binap}\}]$  was elucidated to be (*S*)-OC-6-23-*A*. Catalytic activity for these complexes for asymmetric hydrogenation of prochiral imines will also be discussed.

[1] Yamagata T., Iseki A., Tani K., *Chem. Lett.*, 1997, 1215-1216. [2] Yamagata T., Iseki A., Tani K., *Angew. Chem. Int. Ed.*, 1998, **37**, 3381-3383.

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