Supporting Information

Novel pyrazolylphosphite- and pyrazolylphosphinite-ruthenium(II) complexes as catalysts for hydrogenation of acetophenone

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Figure S1: $^{31}\text{P}^{1\text{H}}$ NMR spectrum of 3. Analysis was carried out in CDCl$_3$ at room temperature.
Figure S2: $^{31}$P$\{^1$H$\}$ NMR spectrum of L3. Analysis was carried out in CDCl$_3$ at room temperature.
Figure S3: $^{31}$P{$^1$H} NMR spectrum of 1. Analysis was carried out in CDCl$_3$ at room temperature.
Figure S4: $^{31}$P-$^1$H NMR spectrum of L1. Analysis was carried out in CDCl$_3$ at room temperature.
**Figure S5**: $^{13}$C-$^1$H NMR spectrum of 1. Analysis was carried out in CDCl$_3$ at room temperature.
Figure S6: $^{13}$C{$^1$H} NMR spectrum of 2. Analysis was carried out in CDCl$_3$ at room temperature.
Conditions: acetophenone = 2 mmol, ruthenium(II) catalyst = 0.02 mmol, (1 mol%) KOH = 1 mmol, 2-propanol (10 mL), 80 °C. Conversions were determined by GC.

**Figure S7**: %Conversion vs time for transfer hydrogenation of acetophenone to 1-phenylethanol using complex 6 as catalyst.
Conditions: acetophenone = 2 mmol, catalyst = 0.02 mmol (1 mol%), H₂ = 20 bar, KOH = 1 mmol, 70 °C, 6 h, ethanol = 5 mL

**Figure S8**: Time study of molecular hydrogenation of acetophenone to 1-phenylethanol using complex 3.
Figure S9a: $^1$H NMR spectrum of 4. Analysis was carried out in CDCl$_3$ at room temperature.
Figure S9b: $^1$H NMR spectrum of (4-i). Analysis was carried out in CDCl$_3$ at room temperature. (4-i) was isolated from a reaction mixture of 2-propanol, 4 and KOH.