

Electronic Supplementary Information

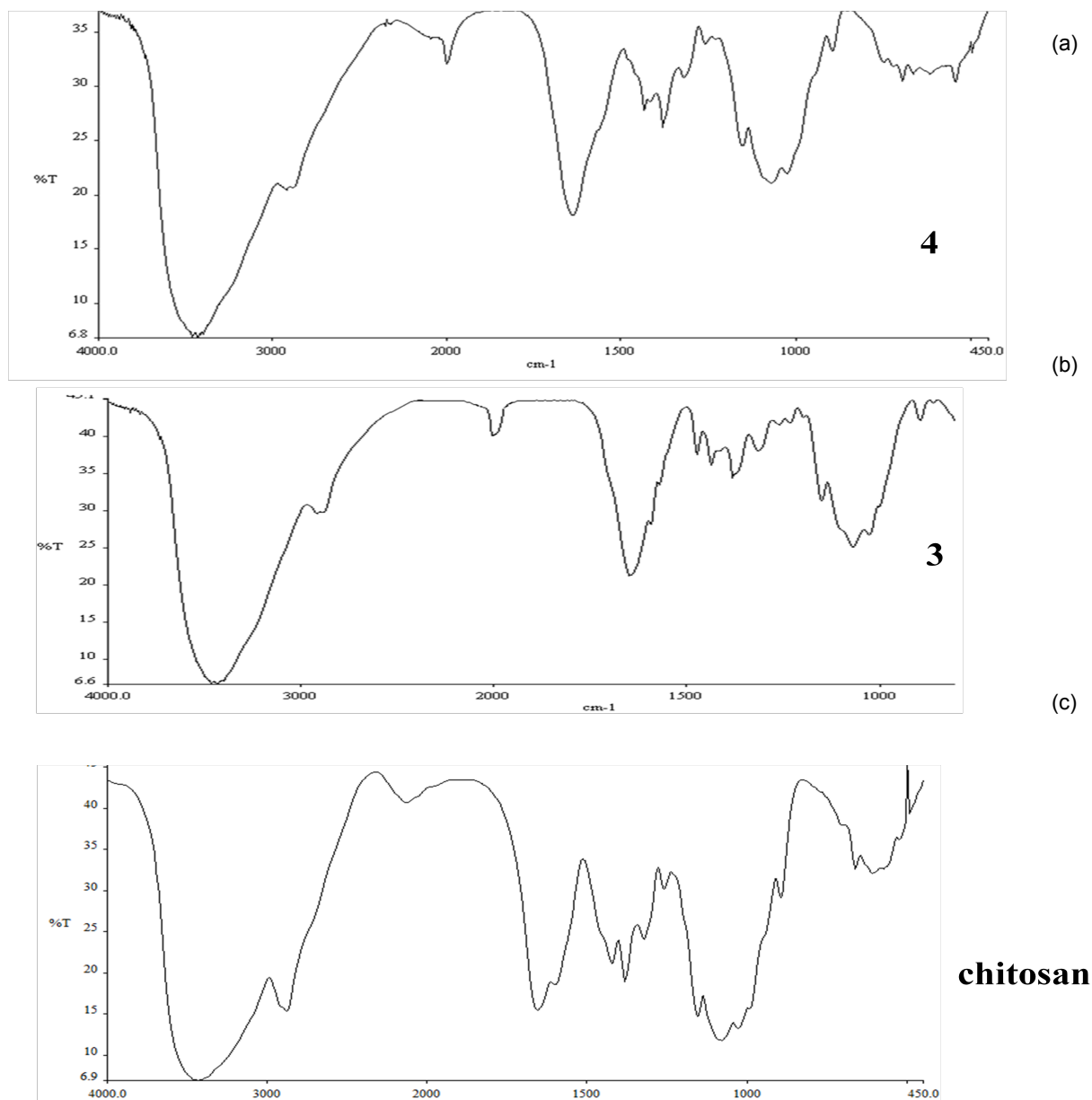


Fig. i FT-IR spectra of supported complexes (a) **4**, (b) **3** and chitosan (c).

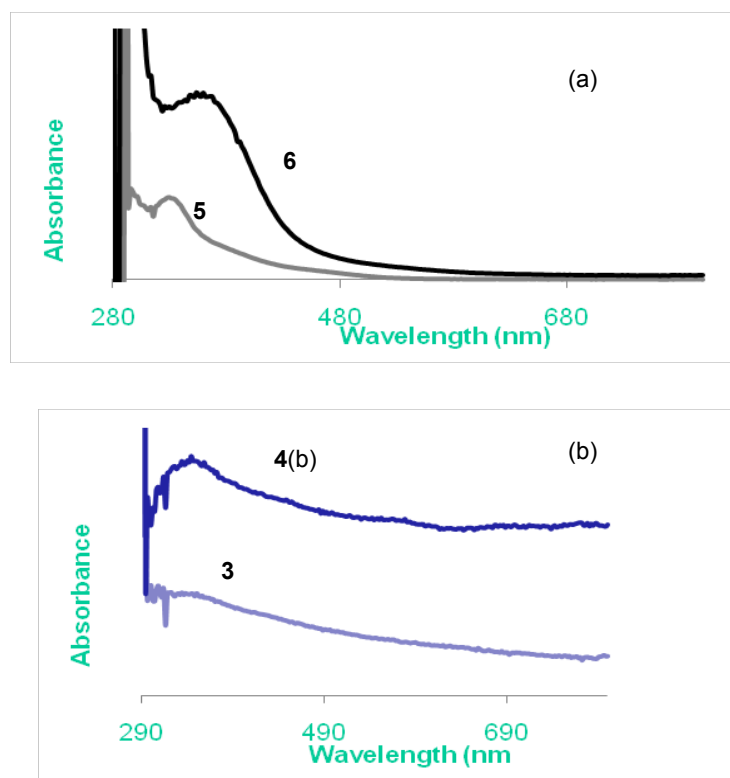


Fig. ii UV-vis spectra showing absorbance peaks of complexes (a) **5** and **6** and supported catalysts (b) **3** and **4**.

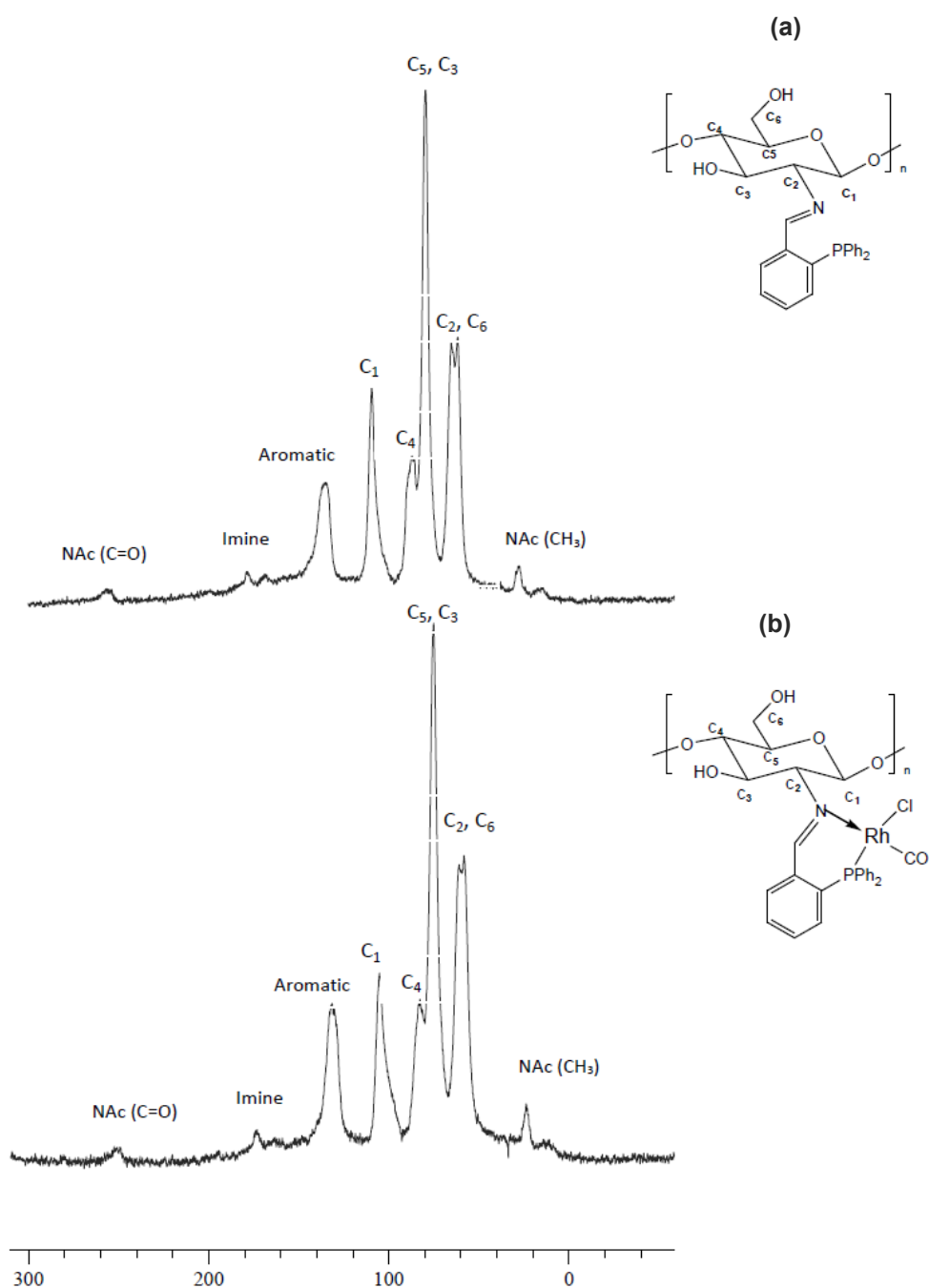


Fig. iii Solid state ^{13}C NMR spectra of (a) chitosan-iminophosphine ligand (**1**) and (b), Chitosan-supported Rh complex (**3**). ^{13}C one-pulse experiments were performed on a Bruker AMX 400 spectrometer at a ^{13}C frequency of 15 kHz at room temperature. Chemical shifts were referenced to Na_2HPO_4 at $\delta = 0$ ppm.

Section i.

1. Orange crystals of complex (**5**) (0.10 x 0.08 x 0.05 mm) suitable for X-ray diffraction analysis were grown by slow evaporation from dichloromethane : *n*-hexane (1:1, ratio) Crystal data for complex (**5**):

Empirical formula	C _{26.50} H ₂₇ Cl ₂ N O P Rh
Formula weight	580.27
Temperature	100(2) K
Wavelength	0.71073 Å
Crystal system, space group	Triclinic, P ¹
Unit cell dimensions	a = 9.7477(5) Å alpha = 72.9480(10)°. b = 11.3212(6) Å beta = 88.6650(10)°. c = 12.8467(7) Å gamma = 65.9030(10)°.
Volume	1229.69(11) Å ³
Z, Calculated density	2, 1.567 mg/m ³
Absorption coefficient	0.997 mm ⁻¹
F(000)	590
Crystal size	0.10 x 0.08 x 0.05 mm
θ range for data collection	2.07 to 30.49°.
Limiting indices	-13 ≤ h ≤ 13, -16 ≤ k ≤ 15, -18 ≤ l ≤ 18
Reflections collected / unique	30276 / 7401 [R(int) = 0.0308]
Completeness to	θ = 30.49 98.9 %
Max. and min. transmission	0.9518 and 0.9069
Refinement method	Full-matrix least-squares on F ²
Data / restraints / parameters	7401 / 2 / 304
Goodness-of-fit on F ²	1.041
Final R indices [I > 2σ(I)]	R1 = 0.0243, wR2 = 0.0590
R indices (all data)	R1 = 0.0288, wR2 = 0.0612
Largest diff. peak and hole	0.909 and -0.738 Å ⁻³

Section ii

Reactions carried out at 30 bars syngas pressure (CO:H₂) (1:1) in xylene (10ml) with 6.37 mmol of 1-octene and 2.87x10⁻³ mmol Rh catalyst (loading = 0.145 (**3**); 0.092 (**4**) mmolg⁻¹). GC conversions obtained using *n*-decane as an internal standard in relation to authentic standard *iso*-octenes and aldehydes. Regioselectivity calculated at 2 or 4 hours, at which time minimal isomerization had occurred.

Section iii

Table a Hydroformylation of 1-octene over 8hrs-Rh leaching studies. ^a

[illegible]

Section iv

Table b Hydroformylation of 1-octene over 8hrs- catalyst reuse studies. ^a

Run	Cat.	% Conversion	% Aldehyde	% <i>iso</i> -octenes	n:iso	TON ^c	TOF ^d
1	3	75	95	5	70:30 ^b	2088	261
2	3	77	86	14	74:26 ^b	1712	252
3	3	79	70	30	74:26 ^b	2013	214
4	3	72	71	29	72:28 ^b	2011	223
5	3	52	63	37	71:30 ^b	1064	132
1	4	73	51	49	57:43 ^b	1097	137
2	4	4	39	61	67:33 ^b	838	104
3	4	3	29	71	62:38 ^b	623	77

^a Reactions carried out with (CO:H₂) (1:1) at 75°C in xylene (10ml) with 6.37 mmol of 1-octene and 2.87x10⁻³ mmol Rh catalyst (loading = 0.145 (**3**); 0.092 (**4**) mmolg⁻¹). GC conversions obtained using *n*-decane as an internal standard in relation to authentic standard *iso*-octenes and aldehydes. ^b Regioselectivity calculated at 4hrs. ^cTON = (mol product/mol cat.). ^dTOF = (mol product/mol cat.) x h⁻¹.