

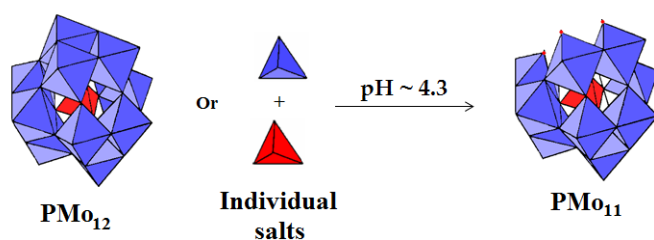
Keggin type mono Ni(II)- substituted phosphomolybdate: a sustainable, homogeneous and reusable catalyst for Suzuki-Miyaura cross-coupling reaction

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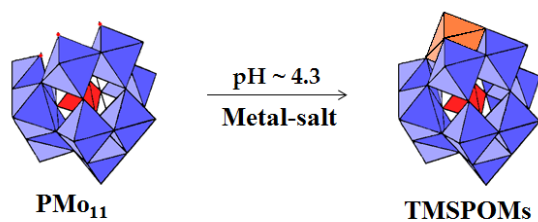
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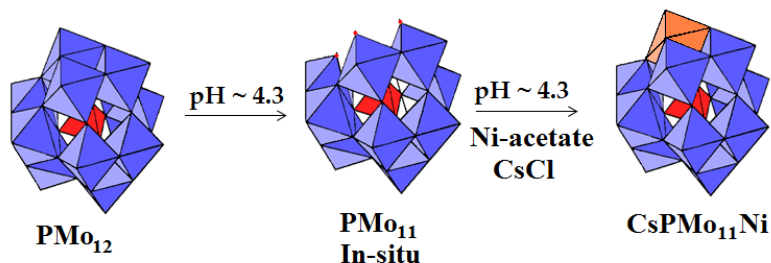
i)



ii)



Scheme S1. Synthesis transition metal substituted polyoxometalates i) synthesis and isolation of lacunary precursor, $\text{PMo}_{11}\text{O}_{39}^{7-}$ from either parent 12-molybdophosphoric acid (PMo_{12}) or individual transition metal salts (ii) synthesis of transition metal substituted phosphomolybdate/polyoxometalates by incorporation of transition metal ions into $\text{PMo}_{11}\text{O}_{39}^{7-}$



Scheme S2. One-pot synthesis of $\text{CsPMo}_{11}\text{Ni}$

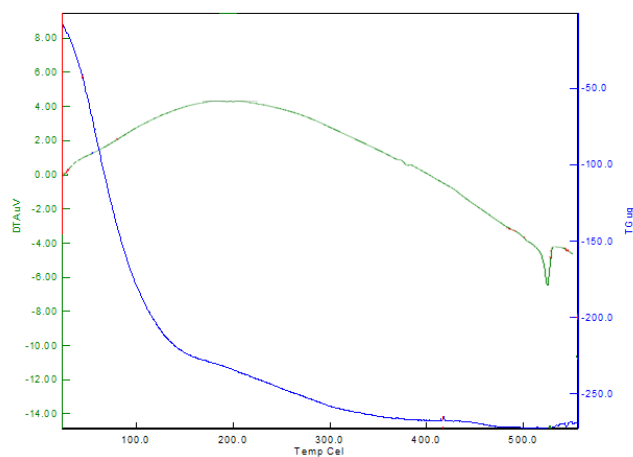


Fig S1. TG-DTA curve of CsPMo₁₁Ni

Melting Point, ¹H- and ¹³C NMR spectra for Biphenyls:

Biphenyl:

Eluent: Petroleum ether; white crystals,
m.p. 68-71 °C.

4-Nitrobiphenyl:

Eluent: 98:2 Petroleum ether /EtOAc; pale yellow crystals,
m.p. 114 °C.

4-Methylbiphenyl:

Eluent: Petroleum ether; white crystals,
m.p. 45-47 °C.

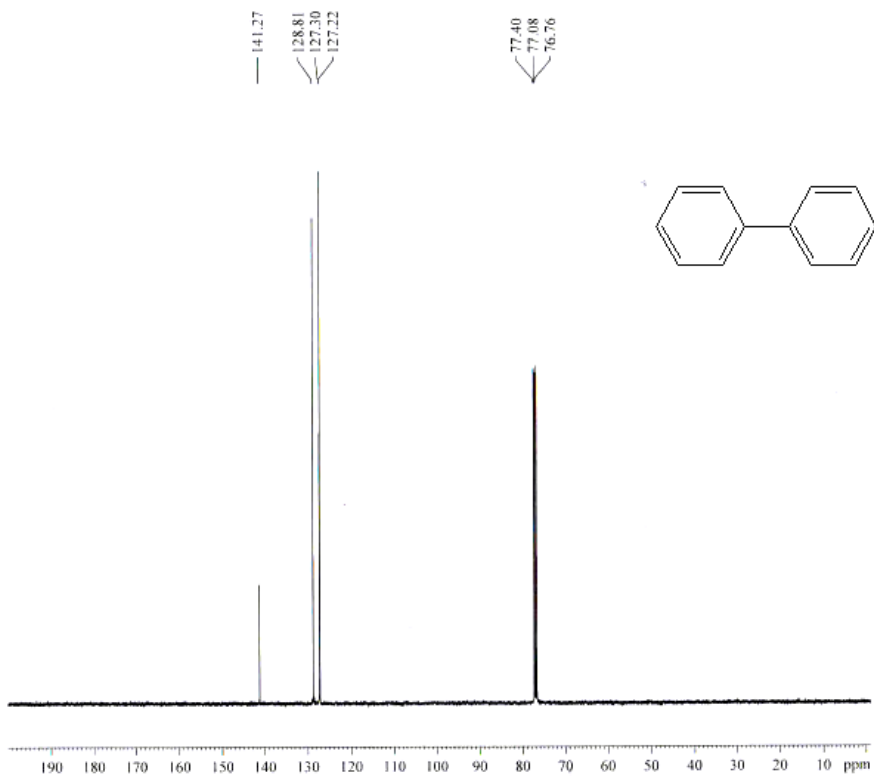
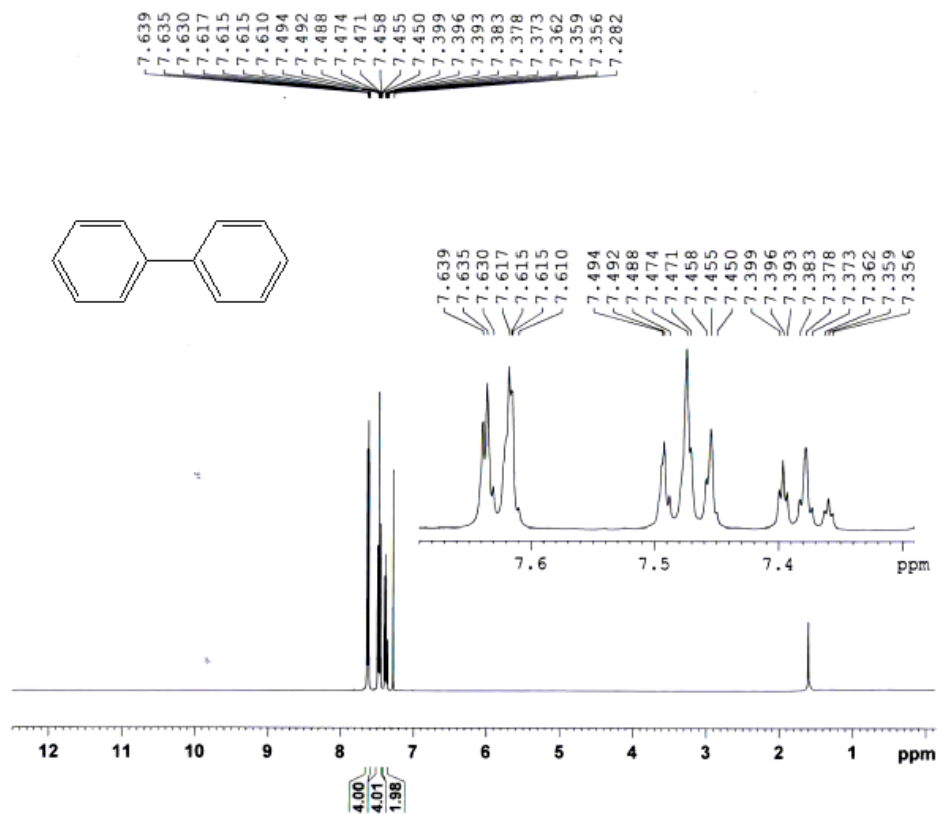
4-Methoxybiphenyl:

Eluent: Petroleum ether; white crystals,
m.p. 88-90 °C.

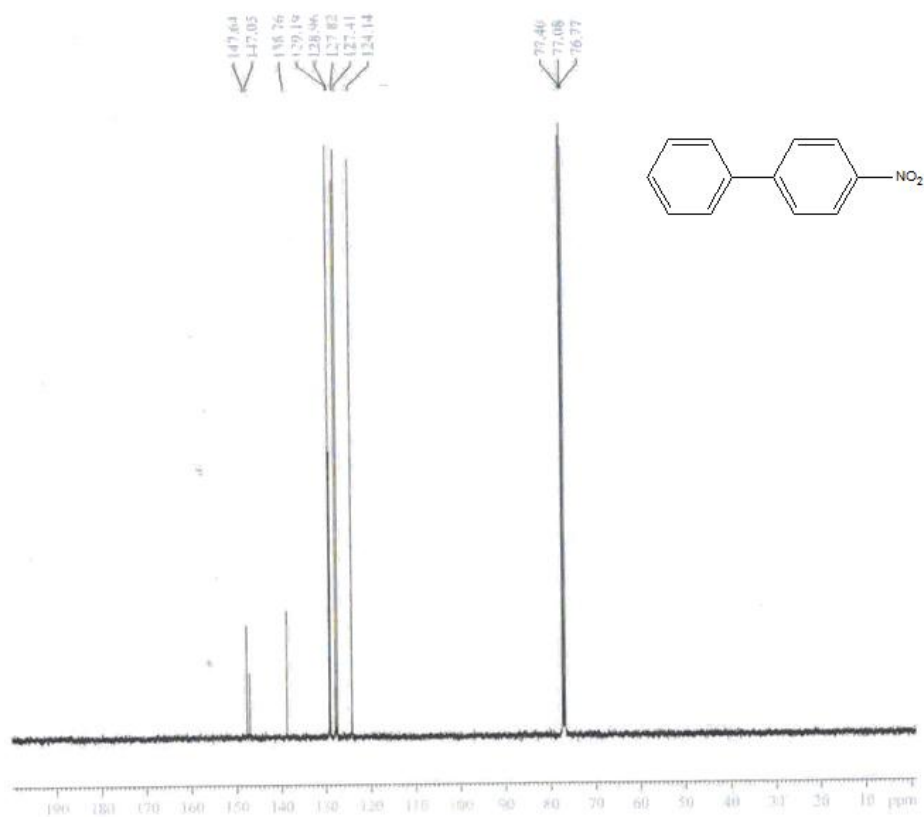
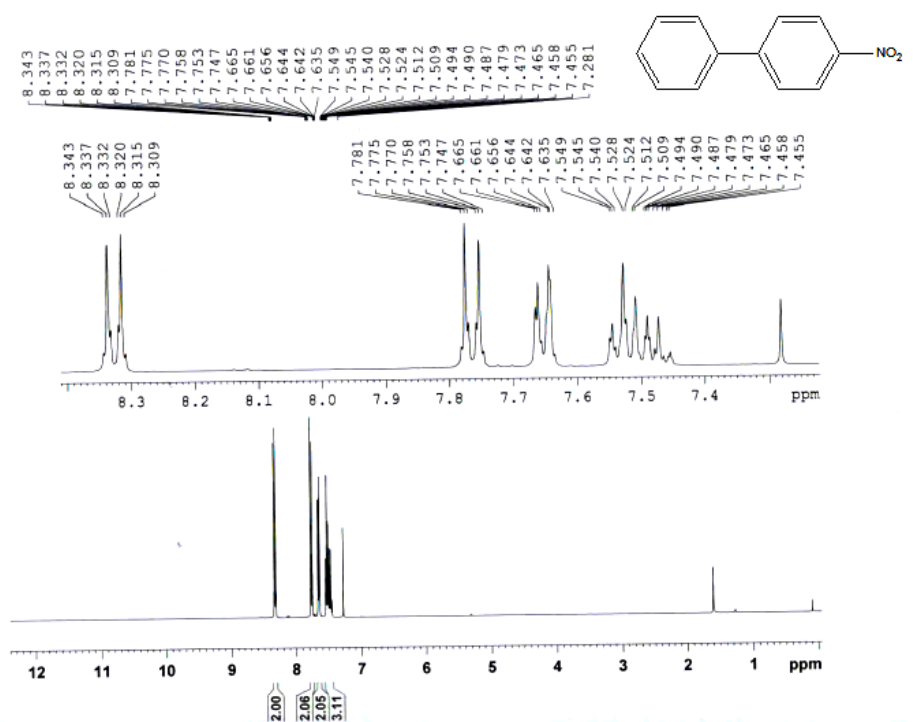
Biphenyl-4-carbaldehyde:

Eluent: Petroleum ether; off-white crystals,
m.p. 56-59 °C.

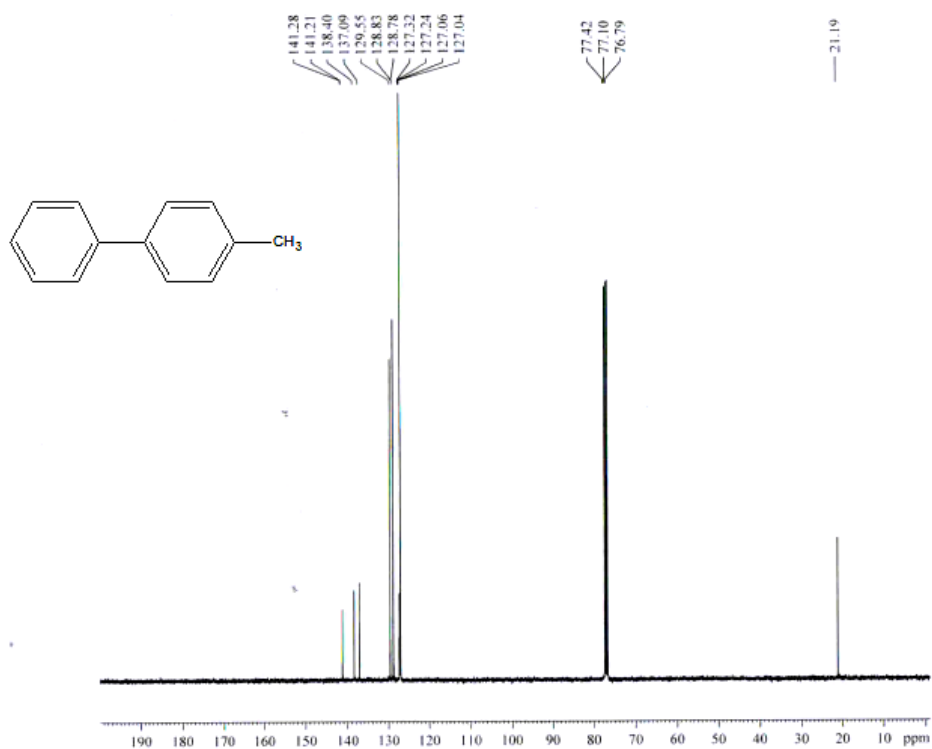
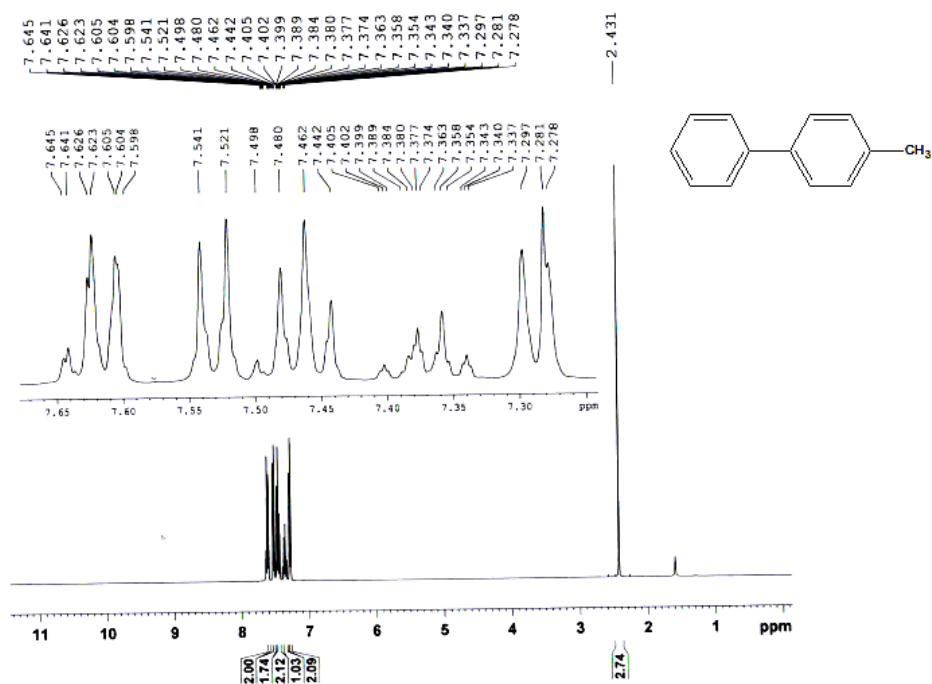
Biphenyl



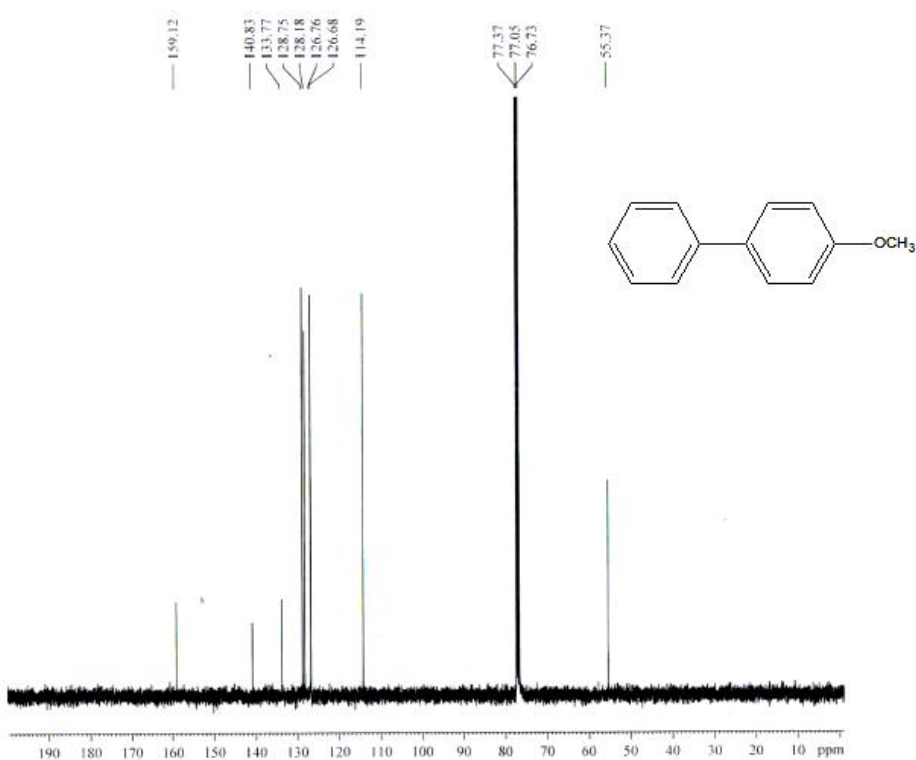
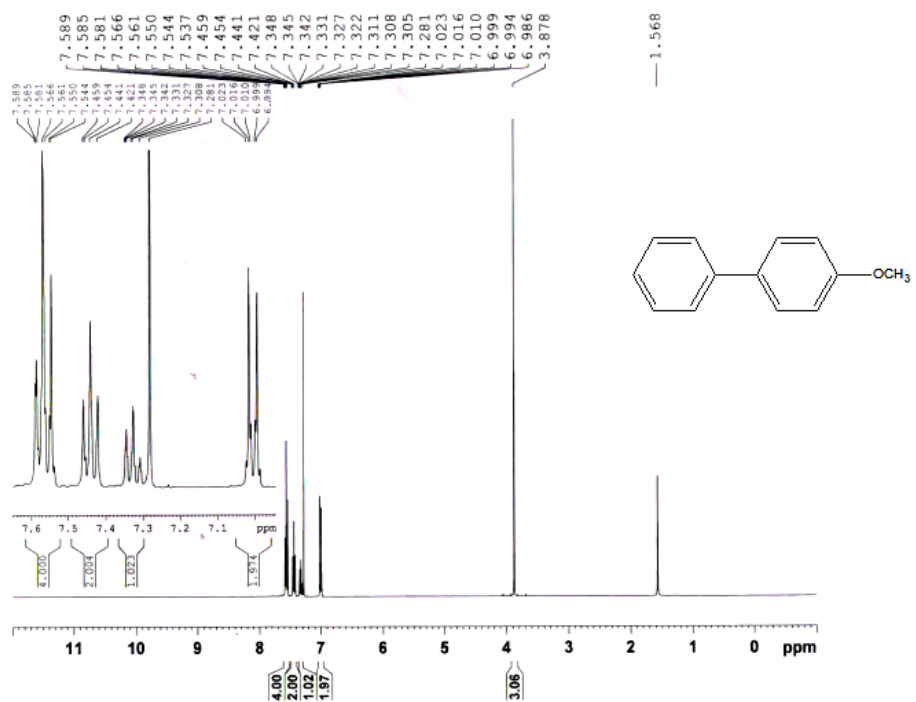
4-Nitrophenyl



4- Methylbiphenyl



4- Methoxybiphenyl



Biphenyl-4-carbaldehyde

