

# Palladium(II)-pivaloyl thiourea complexes: Synthesis, characterisation and their catalytic activity in mild Sonogashira cross-coupling reaction

## Abstract

We report herein the synthesis of Pd(II) complexes featuring pivaloylthiourea derivatives to investigate their catalytic behaviour in Sonogashira cross-coupling reactions as the homogenous catalyst. The  $S_N2$  reactions have resulted in pivaloyl thiourea derivatives ligands with general formula  $(CH_3)_3C(O)NHC(S)NHR$  introducing different substituent groups of  $NO_2$  (L1),  $OCH_3$  (L2), and H (L3) prior to form complexation with Pd(II) (MC1, MC2, and MC3 respectively). All synthesised compounds were characterised via typical selected spectroscopic and analytical methods. Hence, catalytic screening activity revealed that Pd(II)-pivaloyl thiourea catalysed, featuring MC3, is the best catalyst as it gave a high conversion rate up to 99%.

## Keywords

Pd-catalyst; Phosphine-free; Pivaloyl-thiourea; Sonogashira; Spectroscopic