Methoxycarbonylation of olefins catalyzed by palladium(II) complexes containing naphthyl(diphenyl)phosphine ligands

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Palladium(II) complexes containing phosphine donor ligands derived from naphthyl(diphenyl)phosphine were synthesized and characterized by NMR and elemental analysis. The complexes were studied as catalyst precursors in the methoxycarbonylation reaction of several aromatic and aliphatic olefins under mild conditions. The catalysts reported high chemoselectivities (over 96%) and regioselectivities between 44% and 93% for different olefins. The best results were obtained over a styrene substrate with 97% of conversion after 6 h of reaction, with high regioselectivity (93%). Kinetic studies permitted the determination of the rate law (v-?=-?k [substrate] 1.21±0.02 [catalyst]0.94±0.11 [acid] 0.52±0.03 [MeOH]0.53±0.05 [CO] 0.65±0.03) for methoxycarbonylation of styrene.