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# PHOSPHINIDENE COMPLEX PROVIDE DIRECT ACCESS TO NOVEL ORGANOPHOSPHORUS COMPOUNDS

Phosphinidenes are P-analogue of carbenes where P is monovalent with incomplete octet of electrons around it. Free phosphinidenes do not show any reactivity and are highly unstable. They show enhanced stability and reactivity when complexed with organometallic moieties like M $(CO)_5$ (M= Cr, Mo, W). The 2H azaphosphirene complex (1) is one of the precursors known to generate the elcetrophilic phosphinidene complex (2) *in situ* and it is very effective in this approach. Recently, we found that terminal phosphinidene tungsten pentacarbonyl complexes (2) reacted efficiently with the reagents containing no π-systems. For example, a reaction of terminal phosphinidene complex (2) with $CCl_4$ resulted in halogen atom transfer from carbon to phosphorus. Following these results, we run a few reactions of (2) with substrates containing a single carbon-halogen bond like RX ($C_6H_5CH_2$ or Me; X= Cl, Br or I) and in all cases, only a single prochiral product was formed selectively as a result of the insertion-reaction of phosphinidene complexes (2) into a carbon-halogen bond. This method has provided a novel route for one step selective synthesis of prochiral organophosphorus compounds.

## Biography

Arif Ali Khan has received his PhD degree in Chemistry from A M U, Aligarh, India in 1994. Since then he has gained experience as a Research Associate and Senior Research Associate at IIT-Delhi, and as a Post Doctoral Fellow at Technical University of Braunschweig, Germany. He joined as Lecturer in Chemistry at GGSIP University, New Delhi in 2005. His research interests are in the area of coordination chemistry, organophosphorus chemistry, organometallic chemistry, metal ion catalysed/promoted organic synthesis, and Synthesis of biofuels/biodiesel. He has published several research papers in reputed journals. He has successfully completed a number of national projects and international research projects.

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