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Synthesis of 9,10-phenanthrenes via palladium-catalyzed aryne annulation by *o*-halostyrenes and formal synthesis of (±)-tylophorine

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Phenanthrenes are valuable skeletons found in numerous biologically active natural products and medicinal compounds. They are also a common structural motif in material science because of their unique photochemical and electroluminescent properties. A novel palladium-catalyzed annulation reaction of *in situ* generated arynes and o-halostyrenes has been developed, which affords moderate to excellent yields of substituted phenanthrenes and tolerate a variety of functional groups such as nitrile, ester, amide, and ketone. This annulation chemistry has been successfully applied to the formal total synthesis of a biologically active alkaloid (±)-tylophorine.

Biography

Tuanli Yao has completed his PhD from Iowa State University and Post-doctoral studies from University of California, Berkeley. He worked as a Senior Scientist at Deciphera Pharmaceuticals and Associate Researcher at University of Kansas before beginning his career in academics. Currently, he is a Professor at Shaanxi University of Science and Technology. His research interests include aryne chemistry, electrophilic cyclization and palladium catalysis. He has published more than 30 papers in reputed journals.

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