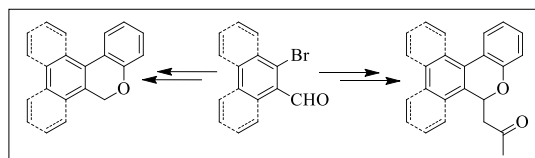


ABSTRACT

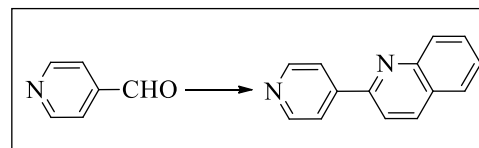
Synthesis of 5*H*- and 6*H*-Chromenes, 2-Arylindoles, 2-(Pyridin-4-yl)quinolines and Benzoxazoles by Palladium- and Copper-Catalyzed Cyclizations

Palladium and copper catalysts have been extensively employed in the formation of various carbon-carbon and carbon-heteroatom bonds over last few decades. These two transition metal catalyzed reactions are generally tolerant of a wide range of functionalities. Hence our focus was centered to exploit palladium and copper catalysis in the formation of important *O*- and *N*- bearing heterocycles like benzo[*c*]chromene, naphthochromene, *N*-tosyl-2-arylindole, 2-phenyl-1*H*-indole, quinoline and benzoxazole scaffolds, found frequently in many natural and unnatural bioactive molecules, with the development of new approaches.

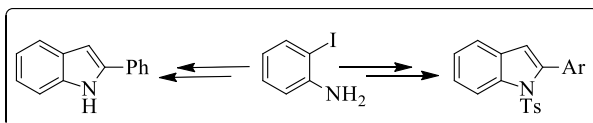
The thesis entitled “*Synthesis of 5*H*- and 6*H*-Chromenes, 2-Arylindoles, 2-(Pyridin-4-yl)quinolines and Benzoxazoles by Palladium- and Copper-Catalyzed Cyclizations*” has been organized in four chapters. **Chapter 1** has been subdivided in two parts (**1A-1B**) where syntheses of benzo[*c*]chromenes and naphthochromenes were achieved in two different approaches via Pd-catalyzed intermolecular as well as intramolecular cyclizations. In **Chapter 2** we have reported two general routes (**2A-2B**) to 2-arylindoles by exploiting Sonogashira cross-coupling and intramolecular C-N bond formation in a cascade process. **Chapter 3** comprises with the description of palladium-catalyzed one-pot synthesis of 2-(pyridin-4-yl)quinolines via an unprecedented multicomponent reaction of pyridine-4-carbaldehyde, 2-iodoaniline and triethylamine. In **Chapter 4** we have disclosed copper powder-catalyzed and KO^tBu-accelerated expeditious synthesis of substituted benzoxazoles.



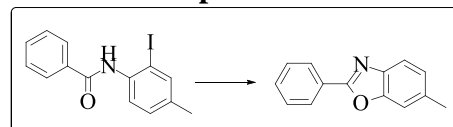
Chapter 1



Chapter 3



Chapter 2



Chapter 4

Keywords: Palladium catalyst, methodology, chromene, 2-arylindole, 2-(pyridin-4-yl)quinoline, C-H insertions of triethylamine, ZnCl₂ hydrate, copper powder, KO^tBu.
