Title:	Studies on the Synthesis of Functionalized Arenes and Heteroarenes via Directing Group-Assisted C-H Functionalization
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Keywords:	C-H functionalization Synthesis of ortho-substituted Removable Bidentate Directing Group Thiophene directed Pd-catalyzed regioselective activation
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Abstract:	The carbon-carbon bond synthesis is one of the most imperative reaction in organic synthesis. Reactions involving aryl-aryl or aryl-alkene coupling using conventional noncatalytic methods generally involves many steps. To sort out this multi steps problem, scientist discovered a new methodology known as palladium-catalyzed cross coupling reactions. After that, the significant discovery in the cross-coupling reactions is the transition metal-catalyzed C-H functionalization, which has emerged as a principal technique for the chemoselective and regioselective synthesis of C-C and C-X (X = hetero) bonds. C-H activation access to a widespread of the substrate due to no pre-functionalization of the starting materials is required and explored the synthetic utility of this methodology. We focused on the development of a variety of substituted phenylacetamide and heteroarene derivatives by using various directing group such as 8-Aminoquinoline and 4-amino-2,1,3- benzothiadiazole (ABTD). With the assistance of these directing groups we synthesize natural product core containing molecules such as indolinone and their derivatives along with the development of functionalized benzamides and the formation of C-O bond. We also functionalized the C-H bond of natural/unnatural aminoacid as well as arylation of heteroarenes system. By knowing the importance of functionalized chiral molecules in the field of medicinal chemistry we synthesize multiple substituted phenylacetamides directed by thiophene via double C-H activation/functionalization methodology.
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