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Palladium catalyzed direct arylation of imidazole and benzimidazole using bromo-4-pyrones

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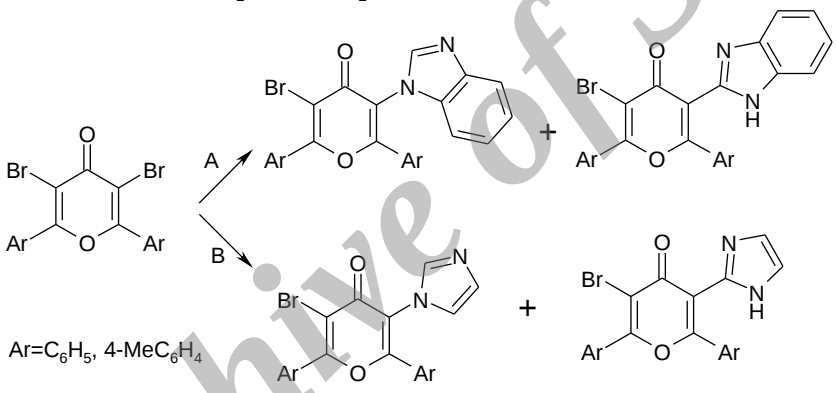
Imidazoles and benzimidazoles are frequently found in a diverse array of compounds, including biologically and therapeutically active agents, natural products and functional materials [1,2]. Various heterocyclic derivatives of 4-pyrones have also been the subject of several synthetic studies, owing to their various biological properties such as anticoagulation [3]. Throughout our recent works on synthesis of new polycyclic and functional 4-pyrones based on Baylis-Hillman chemistry or cross coupling reactions [4,5], we report here the synthesis of new imidazolyl and benzimidazolyl derivatives of 4-pyrones by $Pd(OAc)_2$ catalyzed coupling of these azaaryls with 3,5-dibromo-2,6-diaryl-4-pyrones in the presence of *N*,*N*´-dibutylbenzimidazol-2-ylidene as ligand in DMF at 120°C. A mixture of *N*- and *C*- monoarylated products were obtained which were purified using PLC and characterized with spectroscopic methods.



A: Benzimidazole, $Pd(OAc)_2$, dibutylbenzimidazolium bromide, K_2CO_3, DMF, 120 °C
B: Imidazole, $Pd(OAc)_2$, dibutylbenzimidazolium bromide, K_2CO_3, DMF, 120 °C

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