

C9-Functionalization of 6H-indolo[2,3-b]quinoxaline via Ullmann Catalyzed Reaction

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At the Department of Organic Chemistry of Iv. Javakhishvili Tbilisi State University, the reactivity between 9-iodo-6-benzyl-indolo[2,3-b]quinoxaline and benzylamine, as electron donor and acceptor systems, has been investigated under copper-catalyzed Ullmann C–N cross-coupling conditions. The catalytic system employed copper(I) iodide as the catalyst and L-proline, an amino acid, as a bidentate ligand. Successful results have been achieved. Based on these results and with the aim of expanding research toward indole-containing systems, 2-phenylindole was selected as the electron donor. Experimental results revealed that this is not a straightforward reaction; instead, a complex mixture of the starting reagents and reaction products is formed. It was not possible to isolate or characterize any individual product from this mixture.

The reaction proceeded efficiently and without complications with an electron-acceptor compound such as 4,4'-dibromodiphenyl. As electron donors, 2-phenylindole and 6H-indolo[2,3-b]quinoxaline were selected. The corresponding reaction products were successfully obtained.