Palladium(II)-Catalyzed *Ortho* Arylation of 2-Phenoxypyridines with Potassium Aryltrifluoroborates *via* C-H Functionalization

Jean-Ho Chu（朱見和）, Pi-Shan Lin（林碧珊）, and Ming-Jung Wu（吳明忠）*

Department of Chemistry, National Sun Yat-sen University, Kaohsiung, Taiwan 804, Republic of China

An efficient synthesis of ortho-arylated 2-phenoxypyridines catalyzed by palladium acetate is described. Treatment of 2-phenoxypyridines with two and a half equivalents of potassium aryltrifluoroborate and 10 mol % of Pd(OAc)2 in the presence of two equivalents of Ag2CO3, one equivalent of p-benzoquinone (BQ), and four equivalents of DMSO with (or without) H2O at 130-140 ℃ for 48 h in dried CH2Cl2 gave the ortho-arylated 2-phenoxypyridines in modest to excellent yields. p-Benzoquinone is found to be an important ligand and co-oxidant for the transmetalation reductive elimination step in the catalytic reaction. The investigation of kinetic isotope effect (kH/kD) is determined to be 5.25, which indicates that C-Hbond cleavage occurs in the rate-determining step. One of the arylated compounds, 2-(4'-nitrobiphenyl-2-yloxy)pyridine, was treated with methyl trifluoromethanesulfonate and subsequently sodium methoxide to give the 2-(4-nitrophenyl)phenol in 79% yield, demonstrating that pyridine is a removable directing group.