C-H セレン化を利用した芳香族ジセレニドの合成

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Synthesis of Aromatic Diselenides Via C-H Selenation ([1]*Graduate School of Industrial Technology, Nihon University,* [2]*College of Industrial Technology, Nihon University*) ○Yasuaki Furuya[1] Hayato Ichikawa[2]

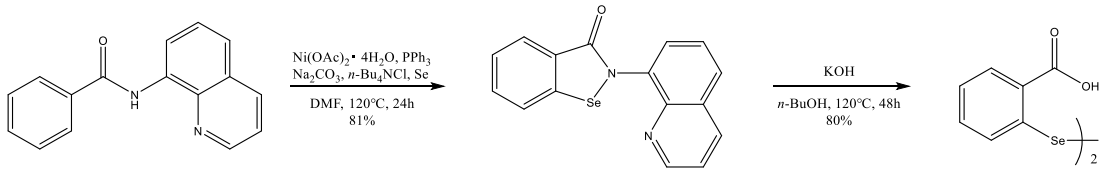
Heterocycles with oxygen or sulfur have attracted attention in a wide range of fields, such as pharmaceuticals, pesticides and various fields because of biological activities. Therefore heterocycles with selenium are expected to have similar effects, but there are fewer reports of selenium-containing heterocycles than oxygen or sulfur containing compounds. In the conventional synthetic route, the presence of a leaving group and a nitro group is required, which limits the number of substituents introduced. In this study, we have synthesized diselenides with various substituents via C-H selenation.

Selenium was introduced into **2a**, which has various substituents, by nickel-catalyzed C-H activation to obtain **3a** in 81% yield. Subsequently, 8-aminoquinoline, as a directing group, was removed by potassium hydroxide to give **1a**, an aromatic diselenide, in 80% yield.

Keywords : C-H activation, aromatic diselenide, organoselenium compounds

酸素や硫黄を含む複素環化合物は生体への活性を示すものが存在するため，医薬，農薬，など幅広く注目を集めている．セレン含有複素環化合物も同様の効果が期待されるが，セレン含有複素環化合物の報告例は前者と比べ少ない．従来の合成経路では脱離基とニトロ基の存在が必要となるため，導入置換基に制限が発生する [1].しかし，本研究では C-H セレン化 [2]を利用することで様々な置換基を持つジセレニドの合成を行った。

2a をニッケル触媒を用いた C-H 活性化によりセレンを導入し，**3a** を 81% で得た。その後水酸化カリウムにより配向基である 8-アミノキノリンを除去し，芳香族ジセレニドのである **1a** を 80% で得た．



2a **3a** **1a**

1) H. Ichikawa, N. Miyashi, Y. Ishigaki and M. Mitsuhashi, *Heterocycles*, 2020, **101**, 444
2) M. Iwasaki, N. Miki, Y. Tsuchiya, K. Nakajima and Y. Nishihara, *Org. Lett*. 2017, **19**, 1092.