Silver Carbonate Catalyst for Efficient Aryl Ester Synthesis

Kwangho Yoo[1], Hyojin Park[1], Suyeon Kim[1], Min Kim[1,*]

[1]*Department of Chemistry and BK21Plus Research Team, Chungbuk National University, Cheongju, 28644, Republic of Korea*

*E-mail: minkim@chungbuk.ac.kr

Silver carbonate is common inorganic base in laboratory, and sometimes it was used as an external oxidant for various catalytic organic transformations. Recently, we developed silver carbonate-mediated cross-coupling reaction between aryl halide and carboxylic acids to form aryl ester with new carbon-oxygen bonds.[1] Traditionally, the cross-coupling reaction between aryl halides and carboxylate were mainly studied with various transition metal catalysis (e.g., copper, palladium, and rhodium), and it was the first example of silver-mediated aryl ester synthesis from aryl halide and carboxylic acids.[2]

The aryl halide compound requires the chelating groups such as pyridine moiety (i.e., benzoquinoline derivative in this reaction) and another inorganic base, KF, promoted the aryl ester formations. The detail combination effects of silver bases and fluoride bases will be discussed in the presentation.

Lastly, during the mechanistic studies, we have developed that further transformation of aryl ester to phenol derivatives. Since the second, hydrolysis step was preceded by thermal treatments; we could selectively control the aryl ester synthesis and phenol derivative synthesis by reaction temperatures. The detail mechanistic studies and reaction substrate scopes will be discussed in this presentation.

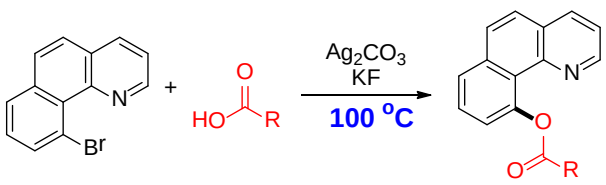

Fig.1 Silver Carbonate-Catalyzed Aryl Ester Synthesis.

REFERENCES

[1] K. Yoo, H. Park, S. Kim, M. Kim, *Tetrahedron Lett*. **2016**, *57*, 781.

[2] W. Wang, F. Luo, S. Zhang, J. Cheng, *J. Org. Chem*. **2010**, *75*, 2415.