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Reacting Cyclopropenones with Arynes: Access to Spirocyclic Xanthene–Cyclopropene Motifs *J. Org. Chem.* **2015**, *80*, 3730–3734.

Aryne't You Doubly Impressed with this Cyclopropenone Insertion?

Selected examples:

Xanthylium triflate formation:

2

Significance: The authors demonstrate a method to formally insert two aryne units into the carbon-oxygen double bond of a ketone, producing spirocyclic xanthene-cyclopropene scaffolds **1**. Mechanistically, a direct formal [2+2] cycloaddition of an aryne with cyclopropenone is followed by the subsequent cycloaddition of the *ortho*-quinone methide intermediate with the second aryne equivalent.

SYNFACTS Contributors: Timothy M. Swager, Sarah P. Luppino Synfacts 2015, 11(6), 0601 Published online: 18.05.2015 **DOI:** 10.1055/s-0034-1380808; **Reg-No.:** S04715SF

Comment: The reaction relies on the strong nucleophilicity of the ketone oxygen: cyclopropenone proved to be one of the best candidates due to its zwitterionic structure, and attempts to generalize the reaction with other ketones failed. Interestingly, the more electron-rich aryne precursor, when exposed to trace acid, ring-opened to produce xanthylium triflate **2**.

Category

Synthesis of Materials and Unnatural Products

Key words

heterocycles arynes cycloaddition

ketones



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