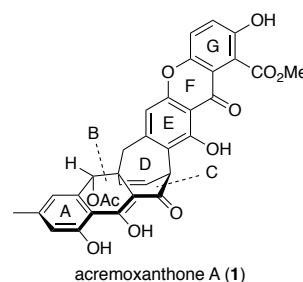


Total synthesis of acremoxanthone A, a naturally occurring heptacyclic aromatic polyketide

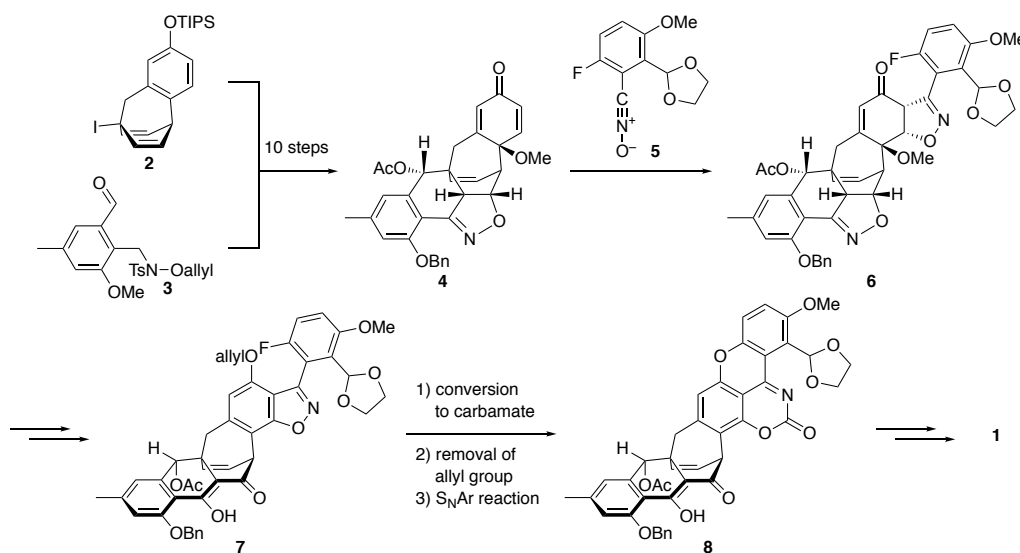
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Keywords: aromatic polyketide, total synthesis, nitrile oxide, cycloaddition, S_NAr reaction

Acremoxanthone A (**1**) is a naturally occurring aromatic polyketide isolated from a fungus and has a characteristic heptacyclic structure containing a bicyclo[3.2.2]nonane skeleton. We have previously reported the construction of A–E and E–G ring system, respectively.¹ Pursuing this study, we herein report the total synthesis of **1**.



The synthesis was begun by the ten-step conversion with iodide **2** and aldehyde **3** to dienone **4**. In next, the 1,3-dipolar cycloaddition of **4** with nitrile oxide **5** gave bisisoxazoline **6**. The site-selective conversion of the isoxazoline moiety in **6** followed by aromatization of the enone moiety led to diketone **7**. After conversion to the corresponding cyclic carbamate, the removal of the allyl group and intramolecular S_NAr reaction gave the xanthone derivative **8**, having all-carbon skeleton of **1**. Subsequent several manipulations accomplished the total synthesis of acremoxanthone A (**1**).



1) (a) Y. Hirano, K. Tokudome, H. Takikawa, K. Suzuki, *Synlett* **2017**, 28, 214. (b) H. Nakakohara, Y. Hirano, K. Ohmori, H. Takikawa, K. Suzuki, *Synlett* **2021**, 32, 423.