Synthesis of Sesquiterpene-tropolones

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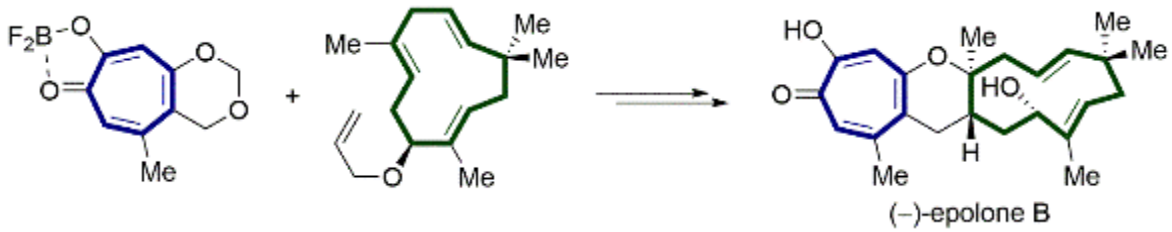
The sesquiterpene-tropolones are fungal metabolites that have been recognized for their compelling biological activities against multiple cancer cell lines and pathogens. A general synthetic strategy for molecules in this class has not yet been developed despite the necessity for a thorough evaluation of their medicinal potential. We have completed the total synthesis of (–)-epolone B through the application of a biomimetic hetero Diels–Alder reaction between the oxygenated *α*–humulene core and tropolone *o*-quinone methide fragments. The core is prepared as a single enantiomer *via* the hydrogen atom transfer initiated fragmentation of a (–)-caryophyllene oxide derivative. The tropolone is constructed in an enone-olefin [2+2] photocycloaddition and subsequent de Mayo-type fragmentation. Additionally, we have synthesized sesquiterpene-tropolone analogs from *α*–humulene that will be subjected to studies intent on determining the dependence of biological activity on oxidation of the macrocyclic core



(–)-epolone B

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