ORGANIC SEMINAR

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"New Synthesis Strategies For Dihydro-β-agarofuran Molecules"

Dihydro-β-agarofuran (DHβAF) sesquiterpenoids are class of secondary metabolites mainly isolated from Celastraceae family. Many of them show biological activities. The key structural feature of them is a tricyclic 5,11-epoxy-5β,10α-eudesman-4 (14)-ene skeleton. However, limited previous synthesis strategies were either molecule-specific pathways or lack of effective methodologies for controlling stereocenters.

To address these problems, our group developed a new synthesis strategy towards DHβAF with high stereoselectivities in 13 steps. These high selectivities were achieved by applying hydroxyl group directed conjugate addition and reduction in the key steps. Then, our group applied this DHβAF intermediate to synthesize Celastrofuran B and two other sesquiterpenoids that showed promising biological activities. We have made progress in developing new synthesis routes from the intermediate by applying site-blocking strategies.