

Department of Chemistry

Graduate Student Seminar – Summer 2020

Total Synthesis of Natural Products by Oxidative Dearomatization

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The goal of my research is to prepare natural products and related core structures through oxidative dearomatization. The development of a stereoselective iron (III)-mediated intramolecular cascade dearomatization of phenol allowed access to various spirocyclohexadienones and tropones in one step using potassium ferricyanide via single electron transfer (SET). Using this oxidative dearomatization reaction, my thesis focuses on three main parts. The first part is the synthetic efforts toward total synthesis of Harringtonilide. The second part focused on the synthesis of spiro[4.5]decane, a core structure in multiple natural products. The spiro compounds were prepared from *ortho* hydroxyphenyl nitro alkanes using SET reaction with good yield and diastereoselectivity. We worked towards the total synthesis of both Magellanine and Megalleninone by applying this novel methodology. The third part was the first total synthesis of Phaeocauliine D, E, L, and Orobanone which were achieved from commercially available methyl-4-methyl salicylate in 9-13 simple steps.