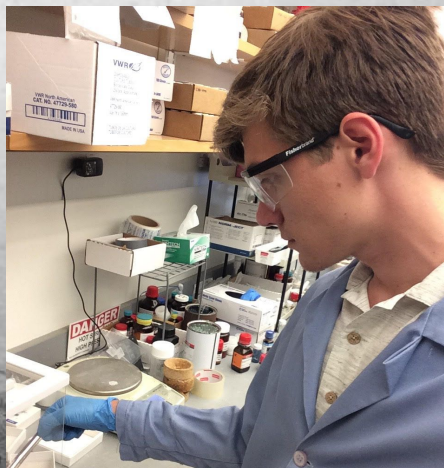


A Radical Approach to Polycycles Using Carboxylic Acids

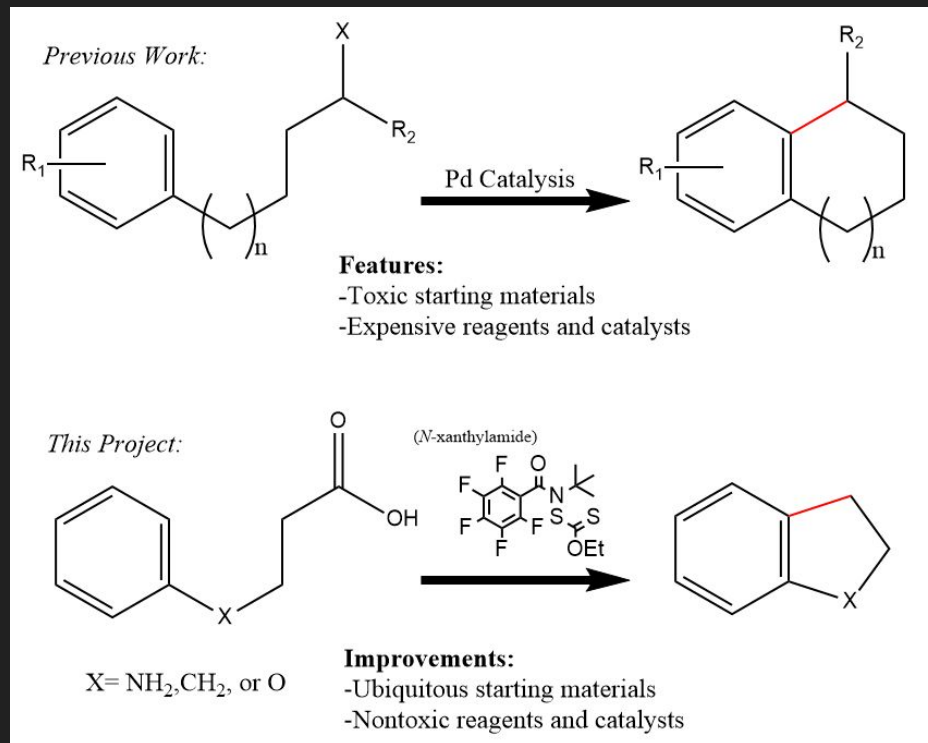
Hunter Gadwill, B.S. Chemistry



What can we do with Xanthyl-amide to create polycycles?

Is it possible to use non-toxic reagents to perform comparable chemistry to other intramolecular aromatic additions?

This work would mark a sustainable alternative over the displayed existing chemistry.



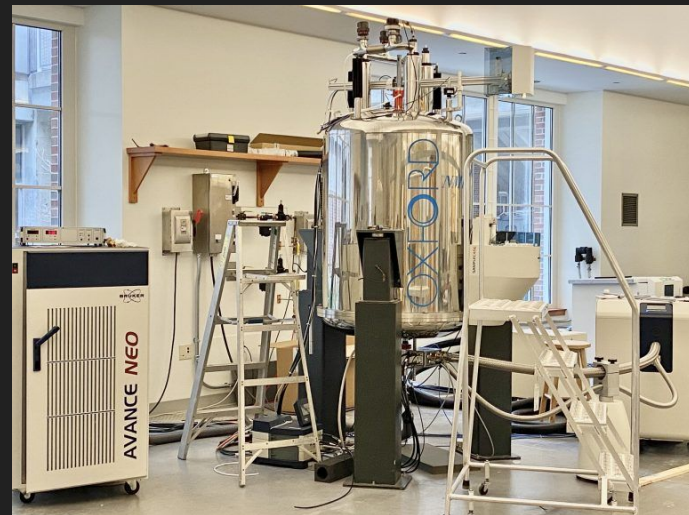
Methodology

- Oxygen-free techniques
- Test reactions were conducted in 3 mL dram vials with closed-septum rubber caps
- Reactions were stirred overnight in a heat block
- Reaction stopped, concentrated, NMR tubes prepared, and data collected.
- Peak integration, gas chromatography-mass spectroscopy fragmentation analysis



Data Collection

- Temperature, mass, equivalents, etc.
- ^1H NMR data collection
 - Assessed conversion and the presence of a “mystery peak”
 - Evaluate the numbers of intermediates
 - Revealed conditions for 100% amide conversion
- GCMS
 - Fragments confirmed no expected product formed



Results and Conclusions

- 4 eq. of xanthyl-amide and 50 mol% DLP, 0.01 M
 - Controlled conditions found to yield the greatest XA and starting-material conversion
 - Optimized equivalents, scale, concentration, for this conversion.
- Provides a clear future direction for further exploration
 - This intermediate may be similar to previous work from the group, and have options for converting it to the desired product in a one-pot reaction.