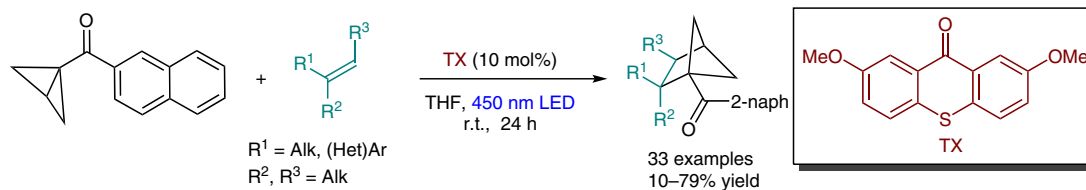


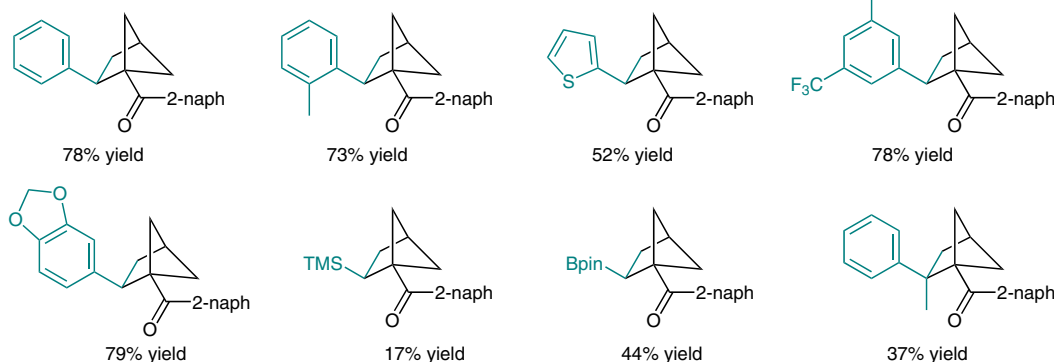
R. GUO, Y.-C. CHANG, L. HERTER, C. SALOME, S. E. BRALEY, T. C. FESSARD, M. K. BROWN*
(INDIANA UNIVERSITY, BLOOMINGTON, USA)

Strain-Release $[2\pi + 2\sigma]$ Cycloadditions for the Synthesis of Bicyclo[2.1.1]hexanes Initiated by Energy Transfer
J. Am. Chem. Soc. **2022**, *144*, 7988–7994, DOI: 10.1021/jacs.2c02976.

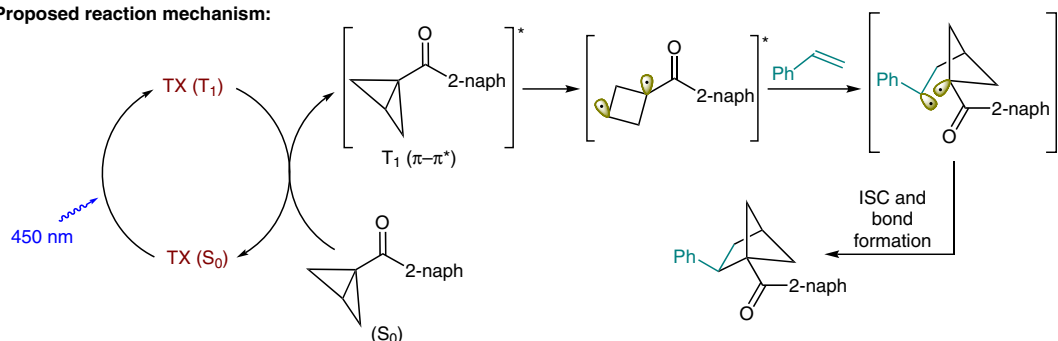
Energy-Transfer-Induced Strain-Release $[2\pi+2\sigma]$ Cycloadditions



Selected examples:



Proposed reaction mechanism:



Significance: Brown and co-workers present a new strategy for the synthesis of bicyclo[2.2.1]hexanes by strain-release $[2\pi+2\sigma]$ cycloadditions. A diradical cyclobutene, formed in situ, reacts with electronically diverse substituted olefins to give the corresponding products in poor to good yields.

Comment: Due to their high rigidity, bicyclo[2.2.1] compounds often show higher activity, solubility and metabolic stability than substituted benzenes, making them important building blocks in drug development. However, currently available methods for the synthesis of bicyclo[2.2.1]hexanes are limited to intramolecular reactions and typically feature a narrow scope. In the highlighted approach, the authors expand the method to intermolecular reactions with a broad scope.

SYNFACTS Contributors: Benjamin List, Vikas Kumar Singh
Synfacts 2022, 18(07), 0787 Published online: 15.06.2022
DOI: 10.1055/s-0041-1737688; Reg-No.: B05322SF

© 2022, Thieme. All rights reserved.
Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany

Category

Organo- and
Biocatalysis

Key words

energy transfer

$[2\pi+2\sigma]$
cycloaddition

ring opening

strain release

bicyclohexanes

Synfact
of the
Month

This document was downloaded for personal use only. Unauthorized distribution is strictly prohibited.