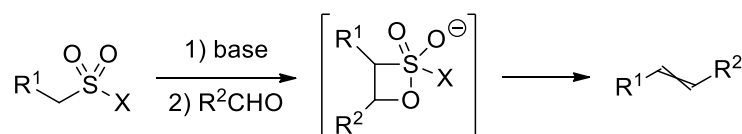


Olefination with Sulfonyl Esters and Halides: *E*-selective Hawkins Reaction Utilizing Semistabilized Carbanion Precursors

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Development of new synthetic methods still plays an important role in the contemporary organic chemistry. In my research I have explored Hawkins Reaction, which is the modification of Julia Olefination utilizing sulfonyl esters and halides instead of sulfones.^[1] Interestingly, mechanism of this reaction involves four-membered intermediate which is unique among sulfur-based olefinations.



Hawkins Reaction is especially interesting because reaction conditions are relatively mild and byproducts could be easily separated during workup, making it promising alternative for commonly used olefination reactions. My current research project is the direct continuation of my bachelor thesis in which I have optimized reaction conditions and established scope and limitation for the reaction between nonstabilized sulfonic esters (R^1 = alkyl) and nonenolizable aldehydes, obtaining alkenes in satisfactory yields as mixtures of isomers.^[2]

During my seminar I will briefly review classical olefination reactions (in particular sulfur-based ones: Julia and Julia-Kocienski). Afterwards, I will present my recent results concerning reactivity of semistabilized sulfonic esters and halides (R^1 = aryl, vinyl) with enolizable and nonenolizable aldehydes.^[3] Such combination of reagents required different reaction conditions than described in my bachelor thesis but most importantly, gave predominantly *E* isomers of alkenes.

[1] J. M. Hawkins, T. A. Lewis, A. S. Raw, *Tetrahedron Lett.* **1990**, 31, 981-984.

[2] B. Górski, A. Talko, T. Basak, M. Barbasiewicz, *Org. Lett.* **2017**, 19, 1756-1759.

[3] B. Górski, D. Basiak, A. Talko, T. Basak, T. Mazurek, M. Barbasiewicz, *Eur. J. Org. Chem.* **2018**, 15, 1774-1784