Z- Selective Rh-Catalyzed Reduction of Dienes

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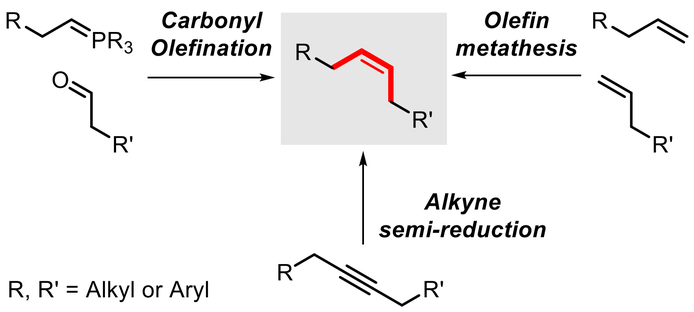
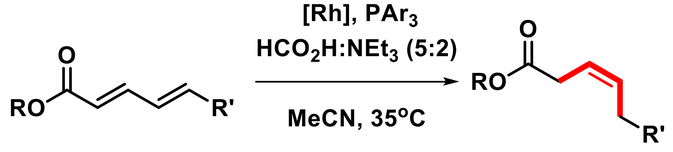
Introduction

a. common methods for the synthesis of Z-olefins.



Limitations: Not tolerant to unsaturated functionalities

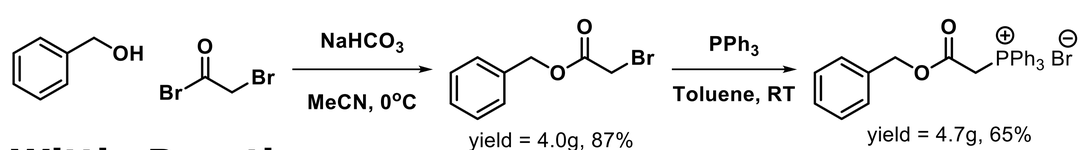
b. New Method - *Z*-Selective Rh-Catalyzed reduction of dienes



Advantages
- tolerates unsaturated functionalities with excellent yield.
- Cheap hydrogen source.
- mild reaction condition

Making of the Starting Material (Diene)

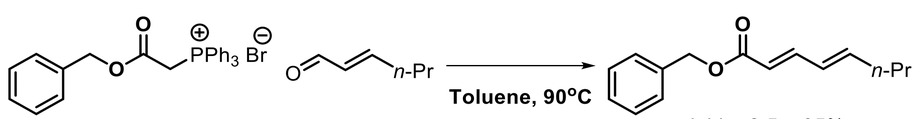
- Synthesis of Wittig Reagent



yield = 4.0g, 87%

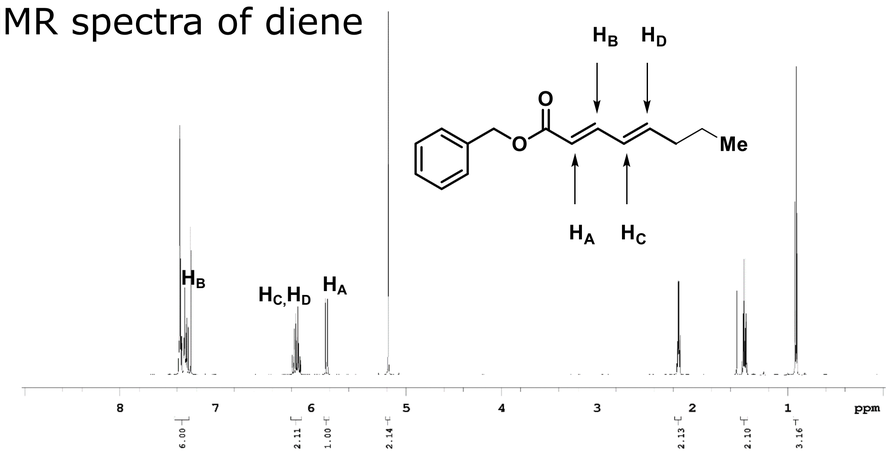
yield = 4.7g, 65%

- Wittig Reaction

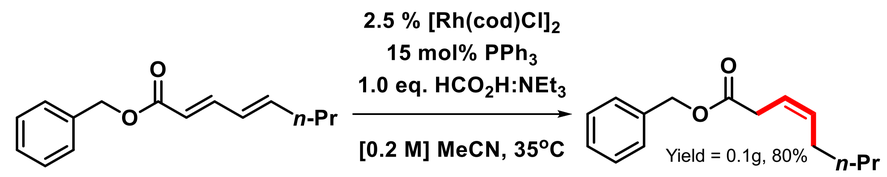


yield = 2.5g, 95%

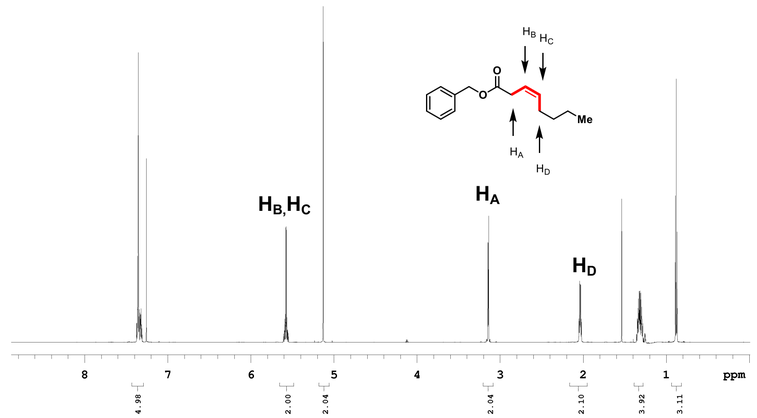
NMR spectra of diene



Selective *Z*-Olefin Synthesis



NMR spectra of *Z*-olefin product



Conclusion

- Achieved reduction of diene to obtain *Z*-olefin.
- Reaction achieved under mild condition.
- This method has been shown to tolerate other unsaturated functionalities.

References

1. *Org. Synth*. **2012**, *89*, 501-509.
2. *J. Am. Chem. Soc*, **2015**,*137*,3482-3485.
3. *Angew. Chem. Int. Ed*. **2014**, *53*, 4186-4190.
4. *Angew. Chem. Int. Ed.* **2018,** *57,* 3981-3984.

Acknowledgements

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