Secteur des Sciences et Technologies

Invitation à la soutenance publique de thèse de

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Master en sciences de l'ingénieur industriel

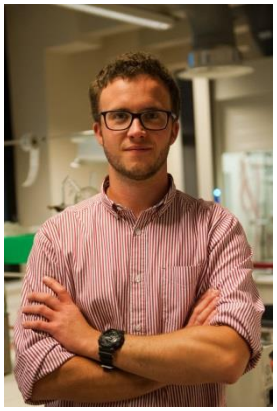
Pour l'obtention du grade de Docteur en sciences

« Divergent and selective rearrangements of vinylcyclopropanes into 1,4-Dienes and Cyclopentenes»

qui se déroulera
le jeudi 03 octobre 2019 à 16h
Auditoire LAVO 51
Place Louis Pasteur, 1
1348 Louvain-la-Neuve

Jury members :

Prof. Raphaël Robiette (UCLouvain), supervisor
Prof. Jean-François Gohy (UCLouvain), chaiperson
Prof. Michael Singleton (UCLouvain), secretary
Prof. Olivier Riant (UCLouvain)
Prof. Jean-Christophe Monbaliu (ULiège, Belgium)
Dr. Florian Montel (Boehringer – Ingelheim, Germany)



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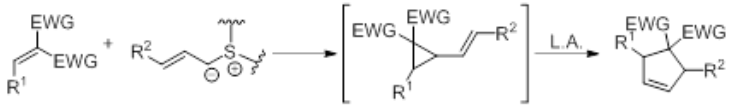
The formation of five-membered carbocycles is a fundamental and important issue in organic synthesis, this scaffold being part of a large amount of biologically active compounds. Cycloaddition or annulation strategies have been described but these reactions requires very specific reactants and thereby are restrictive. Accordingly, we propose to develop a general and effective (3+2) annulation strategy toward five-membered carbocycles by investigating the reaction between activated olefins and sulfonium ylides. Preliminary results showed the feasibility of this methodology *via* a (2+1) annulation followed by a rearrangement.



First, we focused on the optimization of the reaction conditions. Then, we concentered on the extension of the scope of this process by synthesizing new substituted olefins leading to more functionalized cyclopentenes. Interestingly, we discovered that it was also possible to obtain functionalized 1,4-dienes from synthesized vinylcyclopropanes. This scaffold is also very important because it is part of many biologically active compounds and its synthesis is still a challenge in organic chemistry. We thus investigated the mechanism of the vinylcyclopropane rearrangements and the link existing between cyclopentene and 1,4-diene, both being obtained using the same reagents. Presently, this methodology allows forming selectively the 1,4-diene or the cyclopentene just, by changing the reaction conditions, and therefore provides an efficient synthetic tool for this kind of scaffolds.

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