

SEPTEMBER
23-27TH
2024



BRAZILIAN MEETING
ON ORGANIC SYNTHESIS
BENTO GONÇALVES, RS - BRAZIL

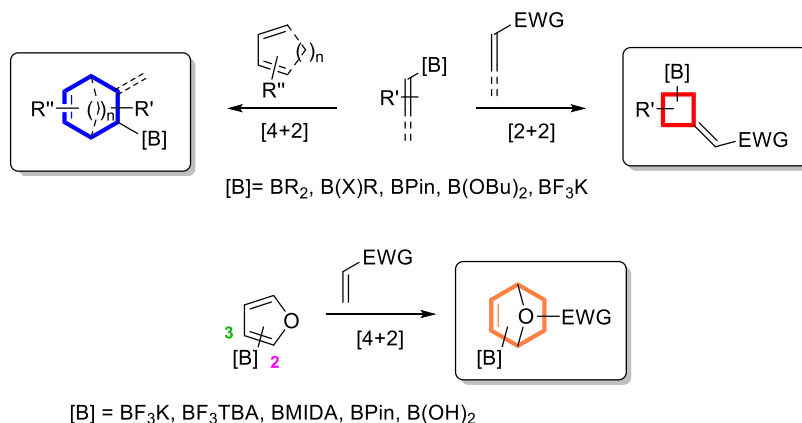
Exploring the reactivity of unsaturated organoboron compounds in cycloadditions and related reactions

Dezotti F., Lambri M. A., Huck J., Labadie N., Medrán N. S. and Pellegrinet S. C.*
Instituto de Química Rosario (CONICET), Facultad de Ciencias Bioquímicas y Farmacéuticas, Universidad Nacional de Rosario, Suipacha 531, Rosario, Argentina
*e-mail: pellegrinet@iquir-conicet.gov.ar

Keywords: Organoboron compounds, cycloaddition reactions, rational design.

ABSTRACT

Organoboron compounds show remarkable reactivity and selectivity and have been successfully used in diverse reactions in organic synthesis. We have contributed to the study and the development of cycloadditions and related reactions of unsaturated organoboron compounds. In particular, we have investigated and rationally designed varied Diels-Alder reactions of boron-substituted dienophiles¹ and dienes.² For example, we have studied the Diels-Alder reactions of dialkyl- and alkylhalovinylboranes, and alkenyl- and allenylboronates, including asymmetric and organocatalytic variants. In addition, we have explored the Diels-Alder reactions of boron-substituted furans, showing that trifluoroborates exhibit exceptional reactivity and selectivity. More recently, we have examined the thermal [2+2] cycloadditions of alkenyl- and allenylboronates. To demonstrate their synthetic potential and also to access structurally diverse molecules, the cycloadducts have been submitted to a range of useful chemical transformations. Theoretical calculations have been performed to shed light into the reaction mechanisms and to aid the further development of new reactions. In this talk, our latest results in this area will be presented.



ACKNOWLEDGEMENTS

We thank CONICET, Universidad Nacional de Rosario, ANPCyT and ASACTEI.

REFERENCES

- For example see: (a) Sarotti, A. M.; Pisano, P. L.; Pellegrinet, S. C. *Org. Biomol. Chem.*, **2010**, *8*, 5069. (b) Vallejos, M.; Grimblat, N.; Pellegrinet, S. C. *RSC Adv.*, **2014**, *4*, 36385. (c) Grimblat, N.; Sarotti, A. M.; Pisano, P. L.; Pellegrinet, S. C. *New J. Chem.*, **2016**, *40*, 1966. (d) Pisano, P. L.; Pellegrinet, S. C. *RSC Adv.*, **2018**, *8*, 33864. (e) Labadie, N.; Ramos Marchena, J. M.; Medrán, N. S.; Pellegrinet, S. C. *Org. Lett.* **2021**, *23*, 5081. (f) Labadie, N.; Pellegrinet, S. C. *J. Org. Chem.*, **2022**, *87*, 16776. (g) Ramos Marchena, J. M.; Terrestre, G. O.; Simonetti, S. O.; Pellegrinet, S. C. *Eur. J. Org. Chem.*, **2023**, *26*, e202201307.
- Medrán, N. S.; Dezotti, F.; Pellegrinet, S. C. *Org. Lett.*, **2019**, *21*, 5068.