

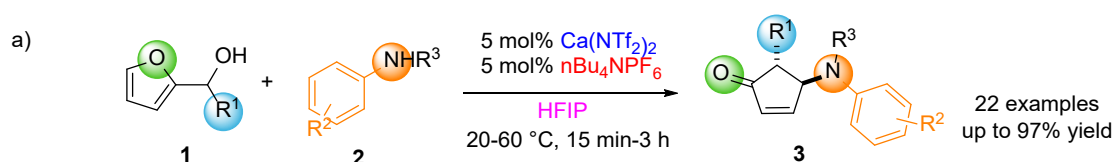
# Development of new Calcium-Catalyzed Cascade Reactions

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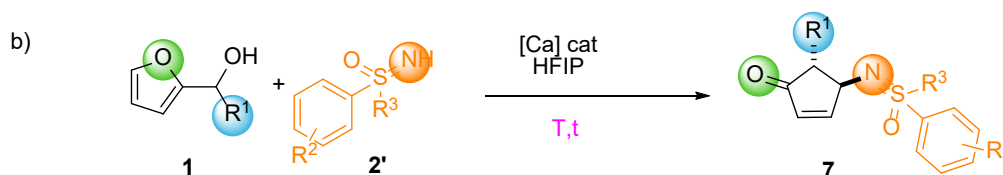
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Since the Niggemann's group demonstration of the activation of  $\text{Ca}(\text{NTf}_2)_2$  by an ammonium salt of a weakly coordinating anion such as  $n\text{Bu}_4\text{NF}_6$  to give a highly oxophilic Lewis, calcium-based Lewis acids has attracted much attention in organic synthesis.<sup>1</sup> In our previous works, we reported the use of such catalysts in combination with hexafluoroisopropanol (HFIP) as solvent, especially for the promotion of the aza-Piancatelli reaction (scheme 1).<sup>2</sup> Exploitation of this catalytic system in one-pot reaction sequences featuring the aza-Piancatelli reaction as a key step allowed the access to previously inaccessible compounds such as cyclopenta[*b*]pyrroles **4**,<sup>3</sup> cyclopenta[*b*]piperazinones **5**<sup>4</sup> and tetrahydrobenzo[*b*]azepines **6**.<sup>5</sup>



**Scheme 1.** Calcium-catalyzed aza-Piancatelli reaction in HFIP developed in the lab.

Our preliminary results onto the development of new catalytic cascade reactions using sulfoximine **2'** as nucleophile to access to new aza-Piancatelli compounds.



**Scheme 2.** Aza-Piancatelli using sulfoximines as azanucleophiles

## References

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