Mechanistic study of a 6-7 switchable acid-catalyzed COT oxide contraction

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ABSTRACT

The synthesis of 7-membered rings poses a challenge due to the limited number of reactions available. [1-3] In this context, Brønsted acid organocatalysis can be used to promote the ring contraction of cyclooctatetraene oxide towards the synthesis of 7 and 6-membered ring aldehydes that could further be activated by the same catalyst towards the enantioselective formation of homoallylic alcohols. (see Fig. 1). In this work, the 7 to 6 switchable character of this mechanism will be explored in detail, and the crucial factor of the organocatalyst's acidity on the mechanism will be revealed.

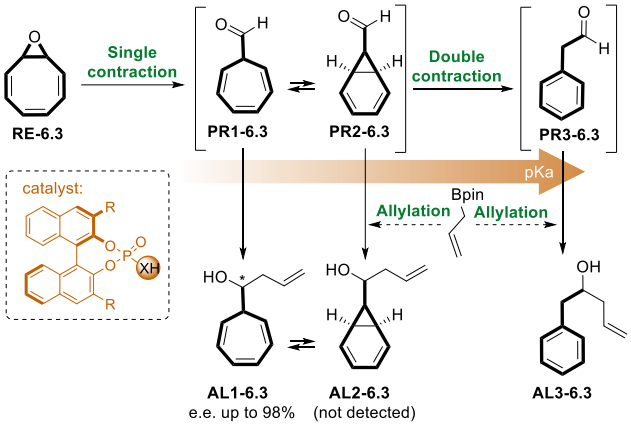

Figure 1: Single and double ring contraction coupled with the enantioselective allylation.

References

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