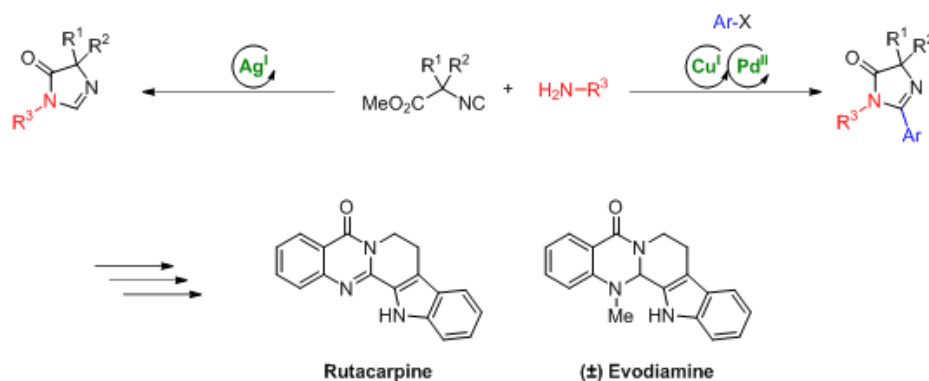


Isocyanide Insertion of α,α -Disubstituted α -Isocyanoacetate: Development of Multicomponent Reactions for the Synthesis of 5,5-Disubstituted Imidazolones and 5,5,2-Trisubstituted Imidazolones

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Abstract: The synthesis of various 5,5-disubstituted imidazolones and 5,5,2-trisubstituted imidazolones has been achieved. Two different methodologies have been developed by taking advantage of the rich reactivity of the isocyanide group. The reaction of α,α -disubstituted isocyanoacetate, primary amines in the presence of a catalytic amount of AgNO_3 afforded 5,5-disubstituted imidazolones in good to excellent yields. On the other hand, a bimetallic $\text{Cu}^{\text{I}}/\text{Pd}^{\text{II}}$ catalyzed reaction of α,α -disubstituted isocyanoacetate, primary amines and aryl halide afforded 5,5,2-trisubstituted imidazolone in moderated to good yield. Finally, total synthesis of Rutacarpine and (\pm) Evodiamine featuring this methodology have been accomplished.



[1] Clemenceau, A.; Wang, Q.; Zhu, J. *manuscript in preparation*.