

**B.Sc. Semester-IV
Core Course-IX (CC-IX)
Organic Chemistry-III**



III. Heterocyclic Compounds

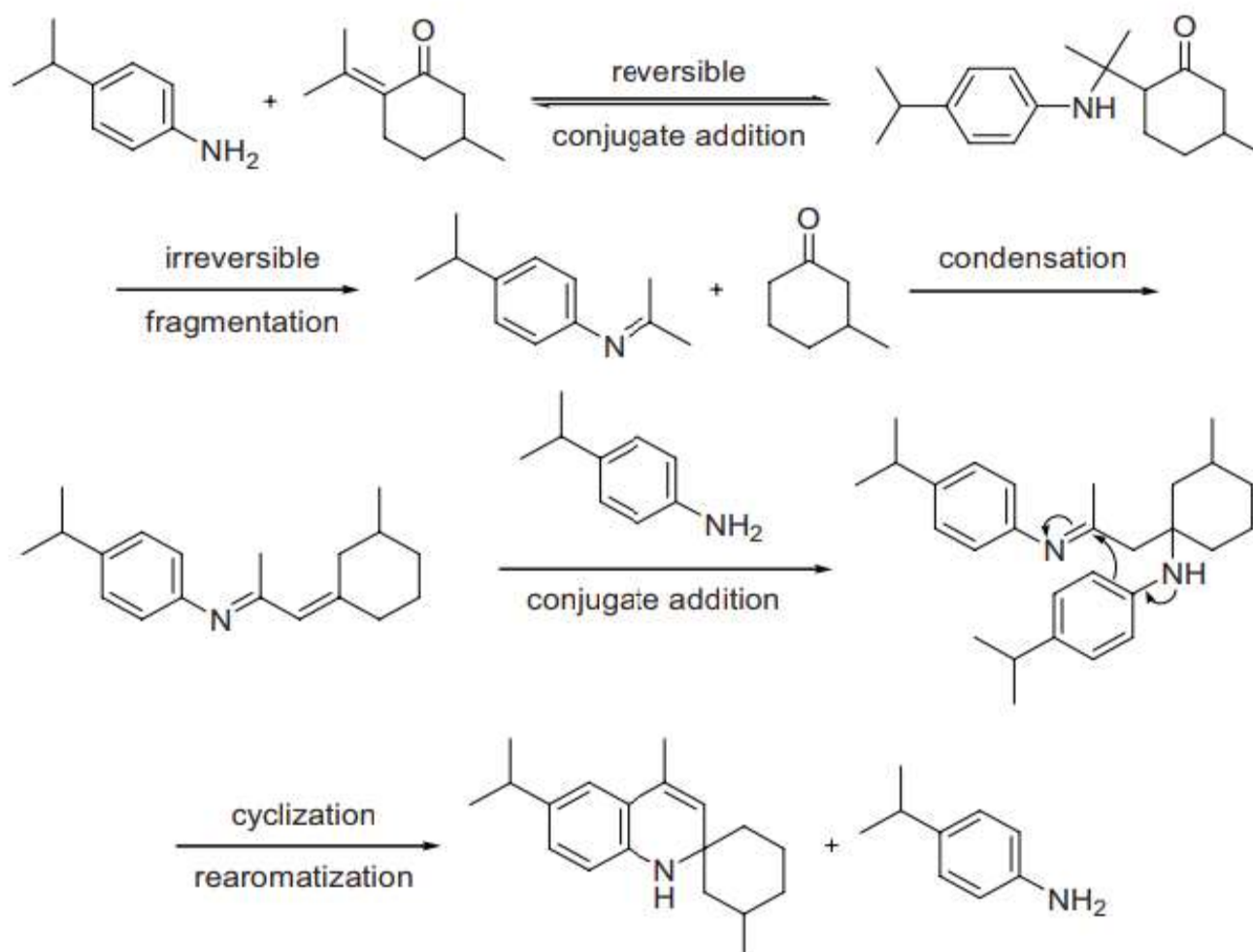
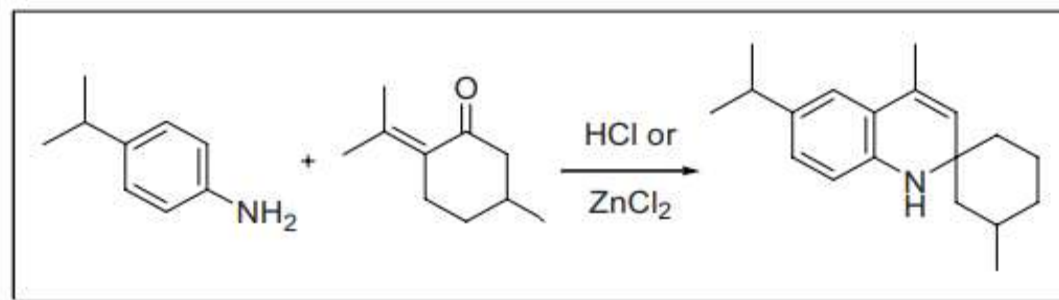
10. Doebner-von Miller Reaction



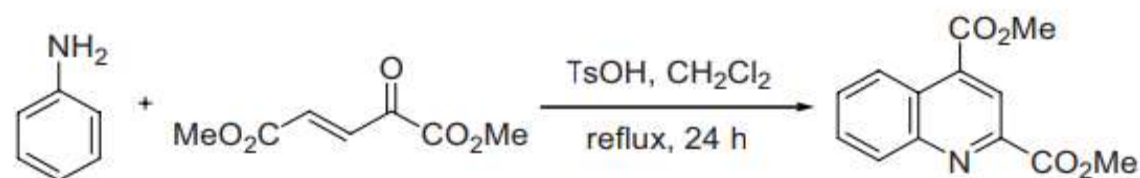
Dr. Rajeev Ranjan
University Department of Chemistry
Dr. Shyama Prasad Mukherjee University, Ranchi

Doebner–von Miller reaction

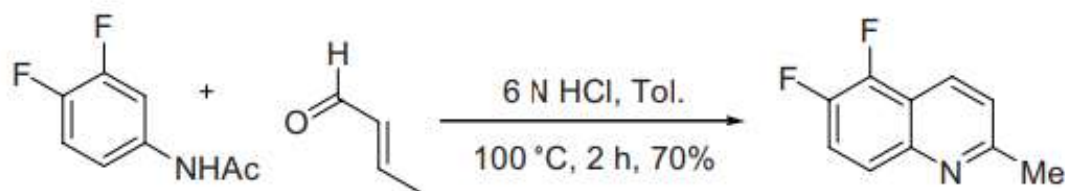
Doebner–von Miller reaction is a variant of the Skraup quinoline synthesis (page 509). Therefore, the mechanism for the Skraup reaction is also operative for the Doebner–von Miller reaction. The following mechanism is favored by Denmark's mechanistic study using ^{13}C -labelled α,β -unsaturated ketones.⁹



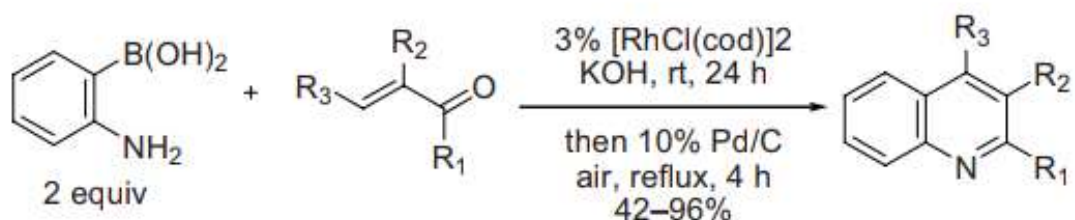
Example 1⁵



Example 2⁶



Example 3, A novel variant¹⁰



References

1. Doebner, O.; von Miller, W. *Ber.* **1883**, *16*, 2464.
2. Corey, E. J.; Tramontano, A. *J. Am. Chem. Soc.* **1981**, *103*, 5599–5600.
3. Eisch, J. J.; Dluzniewski, T. *J. Org. Chem.* **1989**, *54*, 1269–1274.
4. Zhang, Z. P.; Tillekeratne, L. M. V.; Hudson, R. A. *Tetrahedron Lett.* **1998**, *39*, 5133–5134.
5. Carrigan, C. N.; Esslinger, C. S.; Bartlett, R. D.; Bridges, R. J. *Bioorg. Med. Chem. Lett.* **1999**, *9*, 2607–2712.
6. Sprecher, A.-v.; Gerspacher, M.; Beck, A.; Kimmel, S.; Wiestner, H.; Anderson, G. P.; Niederhauser, U.; Subramanian, N.; Bray, M. A. *Bioorg. Med. Chem. Lett.* **1998**, *8*, 965–970.
7. Fürstner, A.; Thiel, O. R.; Blanda, G. *Org. Lett.* **2000**, *2*, 3731–3734.
8. Moore, A. *Skraup Doebner–von Miller Reaction*. In *Name Reactions in Heterocyclic Chemistry*; Li, J. J., Corey, E. J., Eds.; Wiley & Sons: Hoboken, NJ, **2005**, 488–494. (Review).
9. Denmark, S. E.; Venkatraman, S. *J. Org. Chem.* **2006**, *71*, 1668–1676. Mechanistic study using ^{13}C -labelled α,β -unsaturated ketones.
10. Horn, J.; Marsden, S. P.; Nelson, A.; House, D.; Weingarten, G. G. *Org. Lett.* **2008**, *10*, 4117–4120.

Dr. Rajeev Ranjan

University Department of Chemistry
Dr. Shyama Prasad Mukherjee University, Ranchi