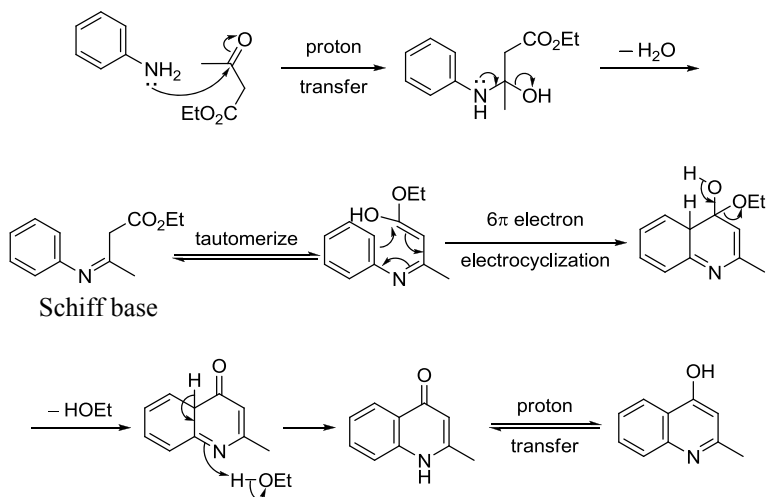
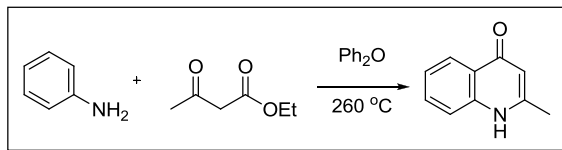
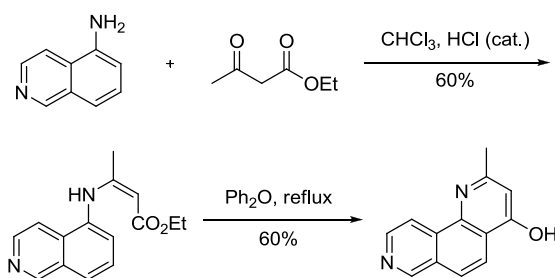


Conrad–Limpach reaction

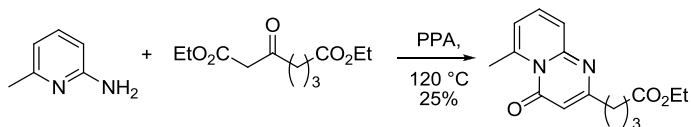
Thermal or acid-catalyzed condensation of anilines with β -ketoesters leads to quinolin-4-ones. Cf. Combes quinoline synthesis.

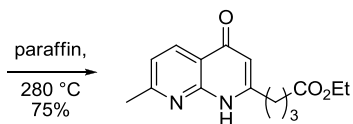
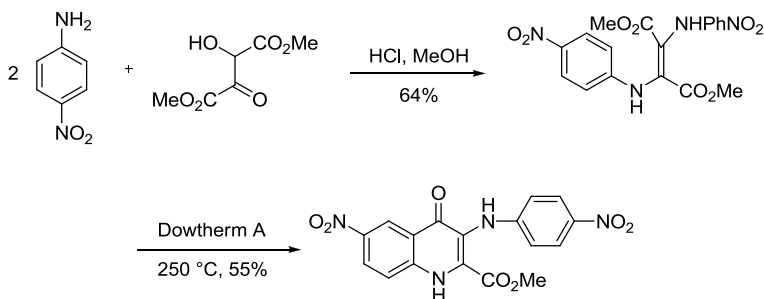
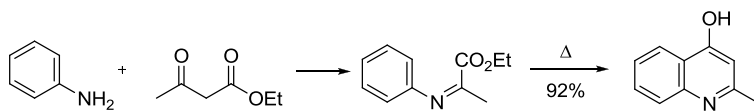


Example 1³



Example 2⁷



Example 3⁸Example 4, Thermal Conrad–Limpach cyclization¹¹

References

- Conrad, M.; Limpach, L. *Ber.* **1887**, *20*, 944. Max Conrad (1848–1920), born in Munich, Germany, was a professor of the University of Würzburg, where he collaborated with Leonhard Limpach (1852–1933) on the synthesis of quinoline derivatives.
- Manske, R. F. *Chem Rev.* **1942**, *30*, 113–114. (Review).
- Misani, F.; Bogert, M. T. *J. Org. Chem.* **1945**, *10*, 347–365
- Reitsema, R. H. *Chem. Rev.* **1948**, *43*, 43–68. (Review).
- Elderfield, R. C. In *Chemistry of Heterocyclic Compounds*, Elderfield, R. C., Wiley & Sons, New York, **1952**, vol. 4, 31–36. (Review).
- Jones, G. In *Heterocyclic Compounds*, Jones, G., ed.; Wiley & Sons, New York, **1977**, Quinolines, Vol 32, 137–151. (Review).
- Deady, L. W.; Werden, D. M. *Synth. Commun.* **1987**, *17*, 319–328.
- Kemp, D. S.; Bowen, B. R. *Tetrahedron Lett.* **1988**, *29*, 5077–5080.
- Curran, T. T. *Conrad–Limpach Reaction*. In *Name Reactions in Heterocyclic Chemistry*; Li, J. J., Ed.; Wiley: Hoboken, NJ, **2005**, pp 398–406. (Review).
- Chan, B. K.; Ciufolini, M. A. *J. Org. Chem.* **2008**, *72*, 8489–8495.
- Lengyel, L.; Nagy, T. Z.; Sipos, G.; Jones, R.; Dormán, G.; Üerge, L.; Darvas, F. *Tetrahedron Lett.* **2012**, *53*, 738–743.