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Chemistry

SUB. CODE- BSCC2402

For B.Sc. 4th Semester

(Heterocycles)

Module-IV

Synthesis of Quinoline

By

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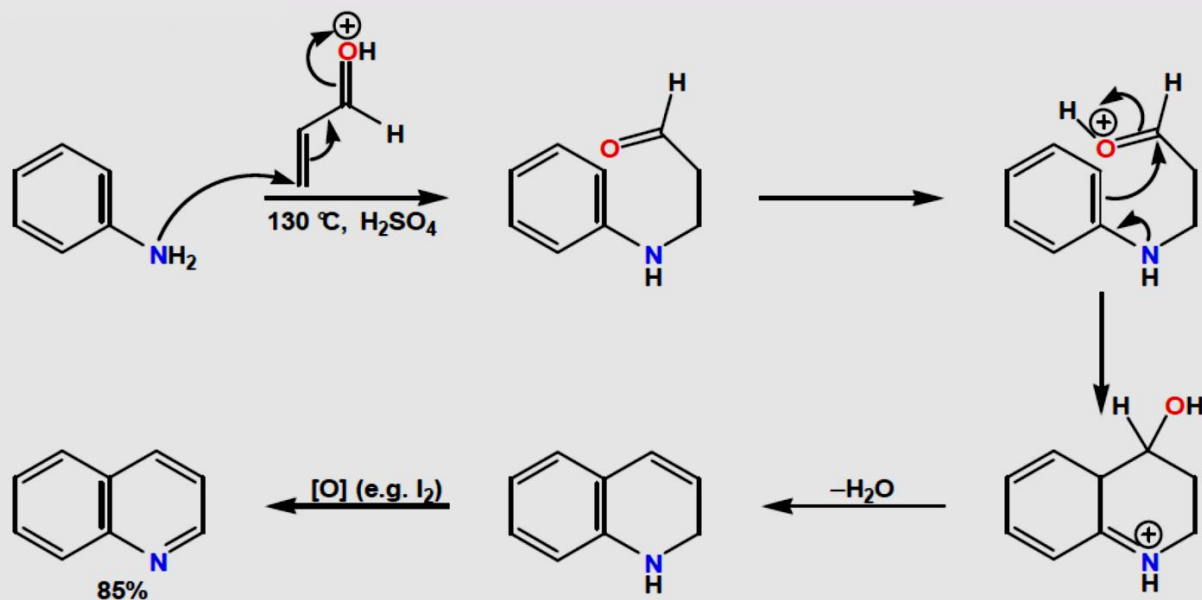
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Skraup synthesis of Quinoline



Acrolein can be generated *in situ* by treatment of glycerol with conc. sulfuric acid.

A mild oxidant is required to form the fully aromatic system from the dihydroquinoline



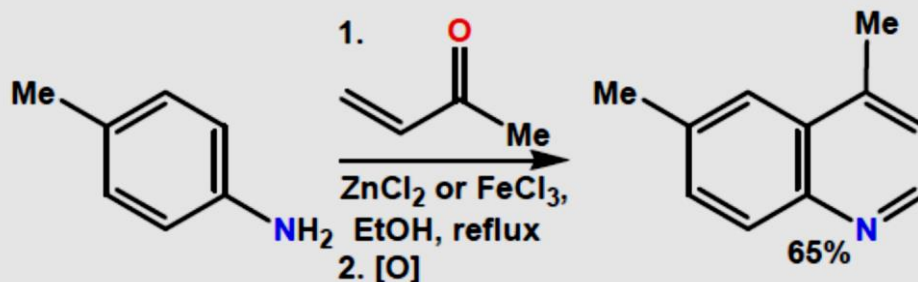
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Skraup synthesis of Quinoline

Example

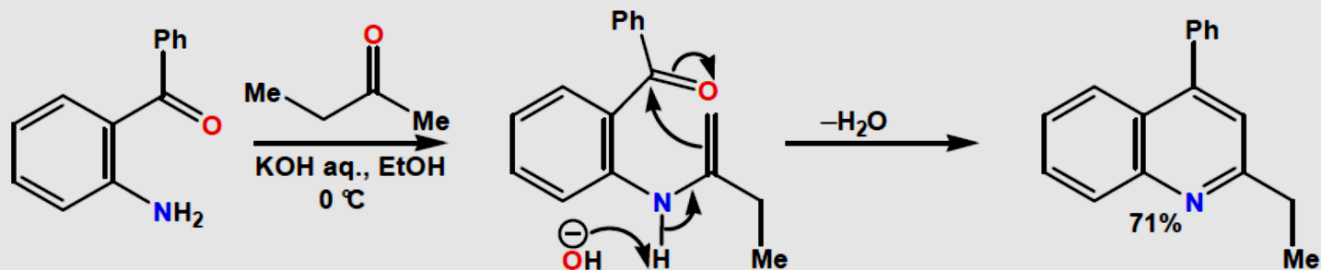
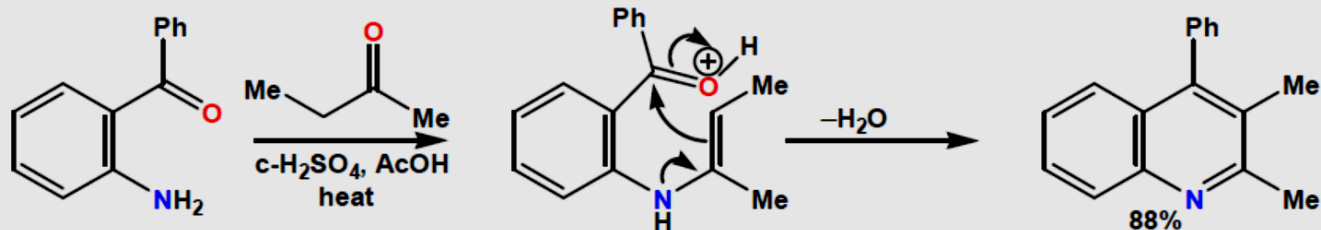




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Friedlander Synthesis



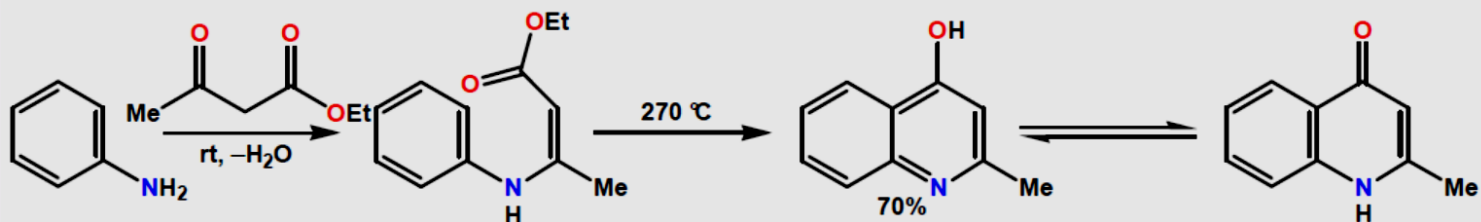
- The starting acyl aniline can be difficult to prepare
- Acidic and basic conditions deliver regioisomeric products in good yields



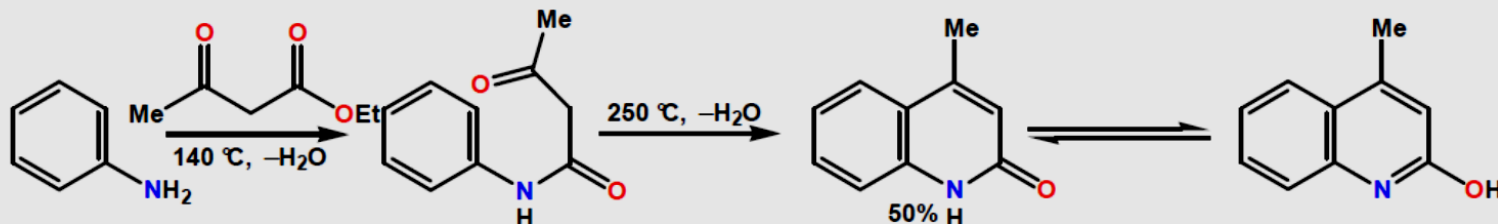
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Knorr quinoline synthesis

Also known as Conrad-Limpach-Knorr synthesis
 β -keto ester is reacted with aniline.



Altering the reaction conditions can completely alter the regiochemical outcome.



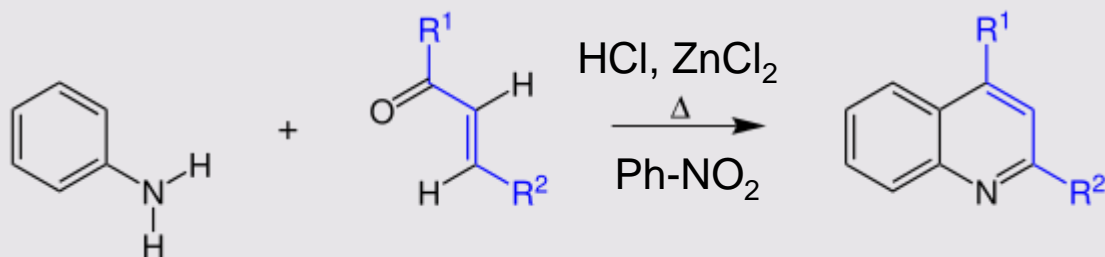


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Doebner- Miller quinoline synthesis

Also known as modified Skraup synthesis of quinolone. This reaction involves condensation of aniline with α , β -unsaturated ketone/aldehyde in presence of HCl and $ZnCl_2$. $Ph-NO_2$

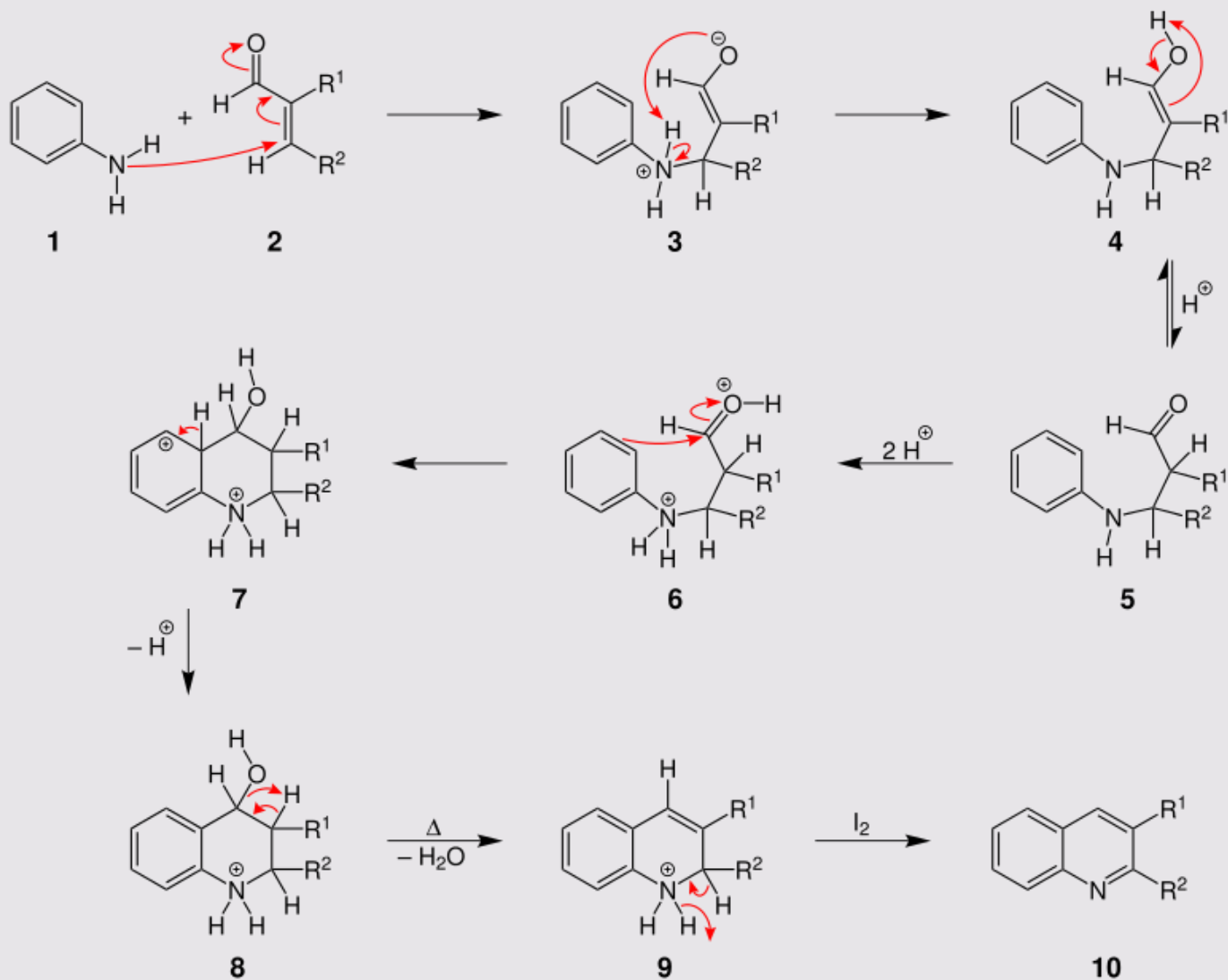




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Doebner- Miller quinoline synthesis





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References

1. K.D Sharma and Y. R. Sharma, Kalyani Publishers, Unit-III page-278;
2. University Chemistry, Vol-IV, Dr. U. N. Dash, Dr. K. K. Ojha, Himalaya Publishing house, Unit IV, page-380