Six membered heterocyclic compounds

BSc. Part III

Organic chemistry

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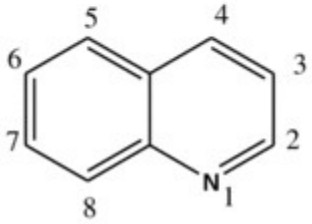
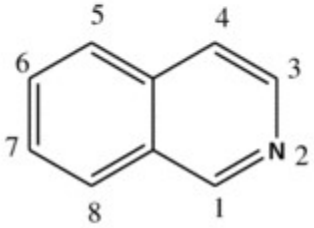
Fused Six membered heterocyclic compounds with one X



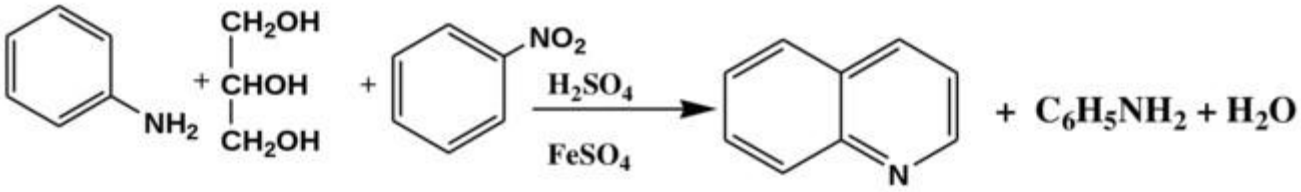
Quinoline
Benzo[b]pyridine
1-azanaphthaline



Isoquinoline
Benzo[c]pyridine
2-azanaphthaline

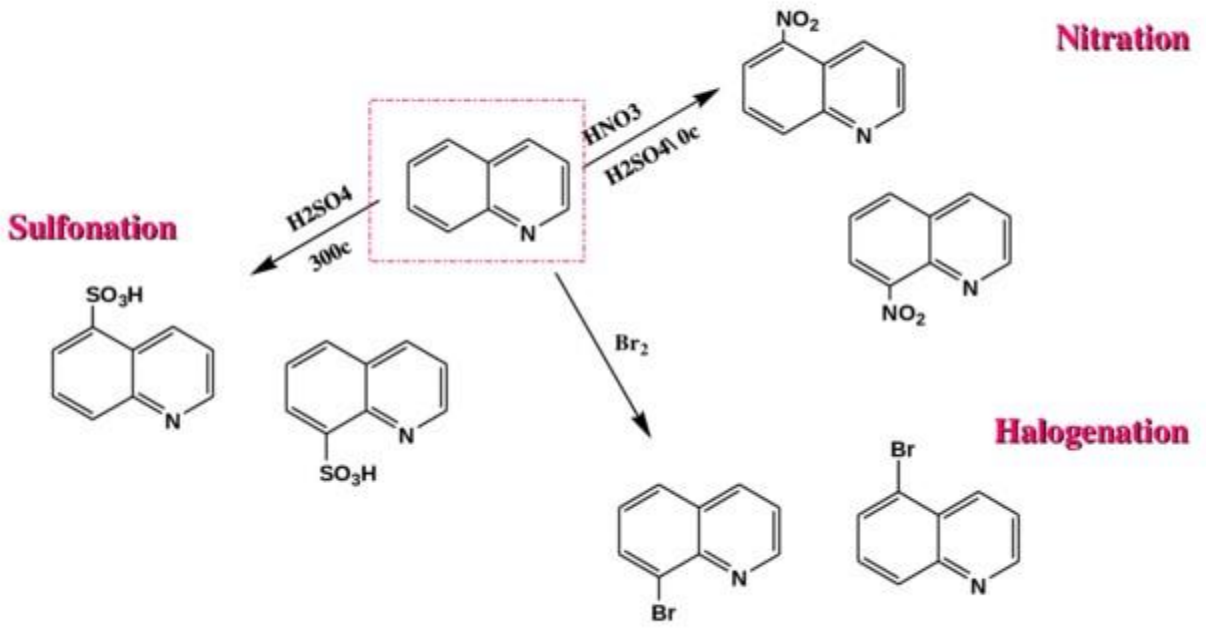
Both are weak bases
Both undergo SE more easly than pyridine in position 5 and 8 on benzoid ring, no on the deactivated N-ring Why?
Like pyridine , N-ring of quinoline and isoquinoline undergo SN at α position

Synthesis of Quinoline Skraup Synthesis

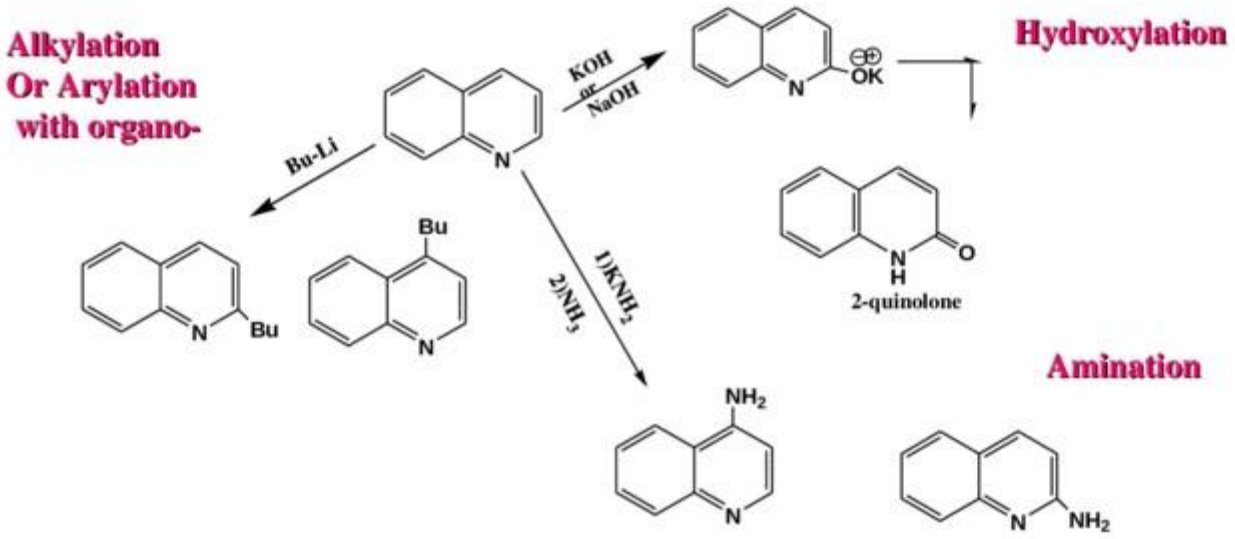


Describe the mechanism

Electrophilic Substitution

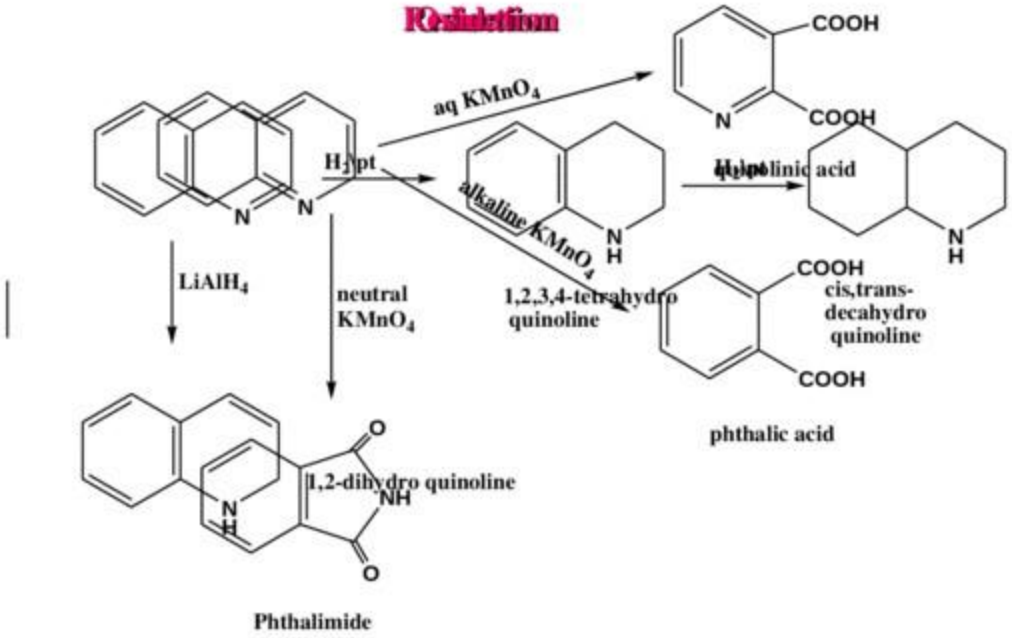


Nucleophilic Substitution



Fused Six membered heterocyclic compounds with one X

Oxidation & Reduction



SYNTHESIS

Isoquinoline was first obtained from coal tar by Hoogewerf and Van Dorp in 1985. They were able to isolate isoquinoline through fractional crystallization of acid sulfate. In 1914, Weissgerber devised a better approach to selectively extract isoquinoline from coal tar. There are numerous methods, through which isoquinoline derivatives can be synthesized. The Pomeranz-Fritsch reaction is an efficient method for the synthesis of isoquinoline chemical. Similarly, using glyoxal acetal and benzylamine along with Schlittler-Muller modification, the same results can be obtained.