SUMMARY AND OUTLOOK

The work reported in this thesis began with an aim of total synthesis of anatalline, which was successfully achieved. First a methodology was designed to synthesise 4,6-diaryl-2-piperidones, an important intermediate leading to the synthesis of 2,4-diarylpiperidines. The cis- and trans-4,6-diaryl-2-piperidones were prepared and their stereoochemical properties were studied with the help of spectral data. Then the target molecule anatalline was synthesised following the same methodology. The configuration of the two pyridyl rings in anatalline was fixed as cis. The trans-2,4-di(3-pyridyl)piperidine was also characterised. The preparation of 4,6-diaryl substituted pyran-2-ones were taken up to study their stereochemistry. Next, 3,4-dihydro-4,6-diaryl substituted 2-pyridinones were synthesised to study their stereochemistry. Later synthesis of 12-phenyl-8-azonanes and D-homo-8-azonanes was attempted but the final step of cyclisation of N-(2-hydroxyethyl)-2,4-diphenyldecahydroquinoline to 8-azonanes did not materialise. The stereochemistry of the intermediates were assigned with the help of $^{13}$C NMR spectra. In the final phase, interesting results were obtained when reduction of various oximes were carried out using copper sulphate and sodium borohydride. Thus, the objective of synthesising some biologically important heterocycles and studying their
stereochemistry was achieved, as originally planned.

In continuation of the present work, one hopes to synthesise some of the quinoline alkaloids such as dubamine (2) and graveoline (3) starting from o-nitro benzaldehyde (1) following the methodology developed in this thesis. It is also planned to synthesise some oxa-aza (5) and thia-aza (6) steroids making use of the procedure developed.

\[ X - CHX - OCH_2 \quad X \rightarrow CH_3, OCH_3 \]
\[ Y = 0, S \]

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