R. V. EDWANKAR, C. R. EDWANKAR, J. R. DESCHAMPS, J. M. COOK* (UNIVERSITY OF WISCONSIN–MILWAUKEE AND NAVAL RESEARCH LABORATORY, WASHINGTON, D.C., USA)

General Strategy for Synthesis of C-19 Methyl-Substituted Sarpagine/Macroline/Ajmaline Indole Alkaloids Including Total Synthesis of 19(S),20(R)-Dihydroperaksine, 19(S),20(R)-Dihydroperaksine-17-al, and Peraksine


Total Synthesis of (+)-Dihydroperaksine-17-al, (+)-Dihydroperaksine, and (+)-Peraksine

**Significance:** The sarpagine alkaloids (+)-19(S),20(R)-dihydroperaksine-17-al, (+)-19(S),20(R)-dihydropraksine (both isolated from *Rauwolfia serpentina*) and (+)-peraksine (isolated from *Rauwolfia perakensis*) have in common the structural feature of a β-methyl group at C-19. Cook and co-workers report the first enantio- and stereospecific synthesis of all three alkaloids.

**Comment:** After introduction of the chiral methyl group by N-alkylation, the pentacyclic core was formed by haloboration followed by a palladium-catalyzed intramolecular α-vinylation of the ketone. Common intermediate F was then converted into (+)-peraksine, (+)-dihydroperaksine-17-al, and (+)-dihydropraksine by a specific acetal protection and hydroboration-oxidation sequence.

![Diagram of the synthesis process](image-url)