SYNTHESIS OF CYCLOALKENOPYRIDINE BY THERMAL REARRANGEMENT OF CYCLOALKANONE OXIME O-ALLYL ETHER AND SYNTHESIS OF ALKALOIDS BY ITS APPLICATION

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Thermolysis of cyclohexanone oxime O-allyl ether (1) (180-190 °C, bath) under argon gave the isoxazoline (2) (major product) and the quinoline (3) (minor). When the reaction was carried out under air, the quinoline (3) was obtained in 50% yield. Several cycloalkanone oxime O-allyl ethers gave the corresponding cycloalkenopyridines in fair yields.

As application of the synthetic method, a synthesis of the alkaloid, onychine (4) was undertaken starting from 2-indanone. However, the spectroscopic properties of the synthetic compound was not identical with those of onychine. On the other hand, 4-aza-1-methyl-fluoren-9-one (5), synthesized from 1-indanone by reaction sequence including the thermal rearrangement of its oxime O-methallyl ether as a key step, indicated the identical spectroscopic properties with those of onychine, the fact suggesting that the structure of onychine should be revised to (5) from (4).

Further application of the method constructing cycloalkenopyridine on the dimethoxyphenyl-cyclohexanone oxime O-allyl ether (6) gave the tetrahydro-qunoline (7). The latter (7) was transformed to one of the Secretium alkaloids, tortuosamine (8) with conventional manner.