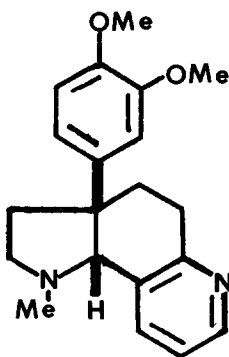


ISOLATION AND STRUCTURE OF A NEW SCELETIUM ALKALOID CONTAINING A DIHYDROPYRIDONE RING

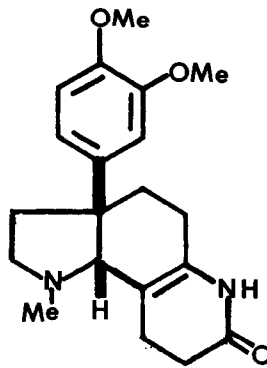
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Previous studies on *S. namaquense* have led to the isolation and characterization of a variety of alkaloids based upon several ring systems¹ including the base *Sceletium A_n* (1)² which is the sole representative of this ring system. This report describes the characterization of a new base which constitutes the second member of this structural class.



1



2

Investigation of the polar column residue from the alumina chromatography of the nonphenolic alkaloids of *S. namaquense* by glc revealed the presence of a new component. Successive preparative layer chromatography over alumina and silica gel yielded a non-crystalline optically active base, $[\theta]_{241}^{25} -10,500^\circ$, which was shown to have the molecular formula $C_{20}H_{26}N_2O_3$ by high resolution mass spectrometry. The 100 MHz ¹H nmr spectrum of the compound showed a typical three proton multiplet at δ 6.75-6.80 characteristic of the 3,4-dimethoxyphenyl group of the mesembrine alkaloids. Other assignable resonances in the proton spectrum included two O-methyl signals at δ 3.42, an N-methyl signal at δ 2.50, and a singlet at δ 7.5 which disappeared upon addition of D₂O. In conjunction with consideration of the infrared spectrum of the alkaloid which showed absorptions at 3470 cm^{-1} (NH) and 1675 cm^{-1} (amide CO), the latter signal in the nmr spectrum was assigned to the NH signal of a secondary amide. The foregoing evidence in conjunction with the mass spectral fragmentation pattern of the alkaloid which included prominent ions at m/e 314

(M-CO) and 299 (M-HNCO) led to the consideration of structure 2 for the new base. Fortunately a racemic product of this structure has been synthesized by Stevens and coworkers.³

Comparison of the spectral (nmr, ms and ir) and chromatographic (gc and tlc) properties of the synthetic product and the new base established their structural identity and vindicates the biogenetic prediction that this compound would occur as a natural product.

Acknowledgments. We are indebted to Dr. R. V. Stevens for the synthetic sample of Compound 2

References

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