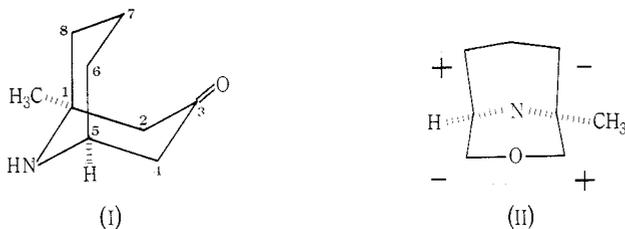


THE ABSOLUTE CONFIGURATION OF
 (+)-9-AZA-1-METHYLBICYCLO[3,3,1]NONAN-3-ONE, AN ALKALOID
 FROM *EUPHORBIA ATOTO* FORST.*

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The alkaloid (+)-9-aza-1-methylbicyclo[3,3,1]nonan-3-one (I) from *Euphorbia atoto* Forst.¹ has an isolated carbonyl group which is potentially an optically active chromophore. When the molecule is viewed in the usual octant rule projection² all the atoms, including the hydrogen atoms, are seen to lie in the nodal planes or disposed in symmetrical pairs about the nodal planes, except the methyl group on one of the ring junction carbon atoms and the corresponding hydrogen atom on the other. Asymmetric perturbation of the carbonyl absorption may be expected from these two substituents with the effect of the methyl group dominating. The circular dichroism (C.D.) spectrum of (I) shows a weak negative peak ($\Delta\epsilon \simeq -0.25$) at *c.* 290 *mμ* in the carbonyl $n \rightarrow \pi^*$ absorption region. The strength of the feature is in accord with the separation of the perturbing methyl substituent from the chromophore. If the heterocyclic ring containing the carbonyl group is in the chair form, the sign of the C.D. band shows that the methyl group lies in the right rear upper octant, as indicated in (II).



The assumption of a chair form for the heterocyclic ring appears to be justified. Bicyclo[3,3,1]nonane is considered to exist in a chair-boat form because molecular models show "an intolerable transannular interaction between the axial hydrogens at C3 and C7".³ This interaction is reduced, however, in compounds such as the alkaloid pseudopelletierine (I, with H instead of CH₃ at C1) in which one of the interfering -CH₂- groups is replaced by C=O, and these compounds are considered to exist in chair-chair form.³ The alkaloid (+)-9-aza-1-methylbicyclo[3,3,1]nonan-3-one can therefore be assigned the absolute configuration depicted in (I).

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¹ Hart, N. K., Johns, S. R., and Lamberton, J. A., *Aust. J. Chem.*, 1967, **20**, 561.

² Moffit, W., Woodward, R. B., Moscovitz, A., Klyne, W., and Djerassi, C., *J. Am. chem. Soc.*, 1961, **83**, 4013.

³ Eliel, E. L., "Stereochemistry of Carbon Compounds." p. 296. (McGraw-Hill: New York 1962.)