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THE STRUCTURE OF MURAMINE

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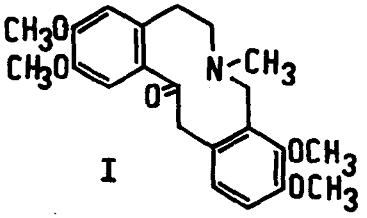
Muramine is an optically inactive alkaloid with a m.p.176-177° which was first isolated by Boit and Flentje (1) from *Papaver nudicaule* L.var.*amurense* and afterwards found in *P.nudicaule* subsp.*rubroaurantiacum* Fedde and subsp.*xanthopetallum* (Trautv.) (2) and in *P.pilosum* L.(3). A base with the same properties of muramine has been isolated by Stermitz and Seiber (4) from *Argemone munita* Dur.et Hilg.subsp.*rotundata*.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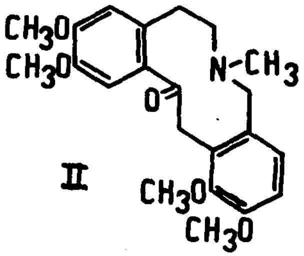
II

Structure (I) was proposed for muramine by Cross *et al.*and was supported by its NMR and mass spectra,although they pointed out(5) that structure (II) was not excluded. A compound with structure (I) and a melting point 148-150° was synthesized several years ago by Haworth,Koepfli and Perkin (6) who named it cryptopalmatine. This difference in melting point induced us to prepare cryptopalmatine by another route and we tried to obtain it from allocryptopine by employing the usual methods which permit the transformation of a methylenedioxy group into two methoxyls. In our particular case no clear results could be obtained and this line of work was abandoned.

The synthesis of cryptopalmatine was then repeated according to Haworth *et al.*(6). All steps worked smoothly but the final compound, with structure (I) had a m.p. 174-175° and gave a methiodide melting 192-194° (muramine methiodide melts at 192-193° (7).

Cryptopalmatine obtained in this way was identical to the alkaloid isolated by Stermitz and Seiber (4) (mixed m.p., IR spectrum and R_f in several solvents) and although we could not compare it with an authentic sample of muramine its UV, IR and NMR spectra were identical to those reported for the natural base (3,5). The IR spectrum presented the strong carbonyl band at 6.05 typical of the protopine alkaloids(8). The NMR spectrum presents, in the aromatic region, the same pattern and area ratios which have been described by Cross *et al.* (5), for the spectrum of muramine, where the signals of the two *para* protons are superimposed upon the outer resonance signals of the quarted produced by the *ortho* protons.

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