Plathyterpol, a Diterpene from *Plathymenia reticulata*

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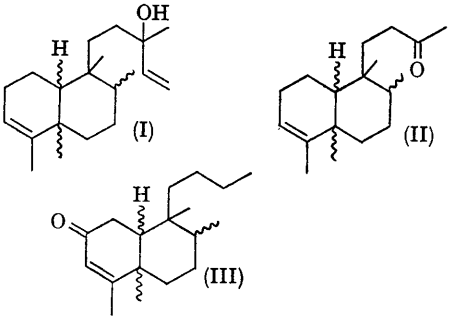
THE light-petroleum extract of the heartwood of *Plathymenia reticulata* (Vinhatico) contains, besides methyl vinhaticoate,[1] a liquid diterpene, $C_{20}H_{34}O$, b.p. 142—144°/0·2 mm., $[\alpha]_D$ −28° (*c* 0·2), which we call plathyterpol and formulate as (I). The molecule contains one tertiary hydroxy-group (i.r.; n.m.r.) and four olefinic protons (n.m.r.) attached to two double bonds (estimated by catalytic reduction) one of which is present as a vinyl group. Jones oxidation gave a ketone, $C_{18}H_{30}O$, m.p. 107—108°, of which the n.m.r. spectrum is in agreement with its formulation as (II).

Huang-Minlon reduction of this ketone gave a liquid olefin, $C_{18}H_{32}$, which by oxidation with sodium dichromate–acetic acid gave an $\alpha\beta$-unsaturated ketone, $C_{18}H_{30}O$, m.p. 97—98°, formulated as (III). The n.m.r. absorption corresponding to the hydrogens α to the carbonyl group of this compound appears as the AB part of an ABX spectrum. The X proton of this system is obscured by the allylic methyl signal (double-resonance experiment) but appears as a singlet in the spectrum of the mixture of $[^2H_5]$- and $[^2H_6]$-compounds obtained by basic deuterium exchange of the ketone.

The reasonable assumption that the natural product is a terpene with a reduced naphthalene ring system [both (I) and (II) afford 1,2,5-trimethylnaphthalene by selenium dehydrogenation] leads to structure (I). Misra, Pandey, and Sukh Dev[2] have implied that a compound of this structure occurs in *Hardwickia pinnata* but no evidence for this has yet appeared.

We are not yet able to define the stereochemistry of plathyterpol but the n.m.r. spectrum of the $\alpha\beta$-unsaturated ketone would suggest that the proton at C-10 (steroid numbering) is equatorial to ring A and thus that the ring fusion is *cis* as in columbin.[3]



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