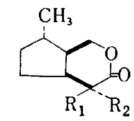
The Structure of Matatabilactone

By Takeo Sakan, Akira Fujino, Fujio Murai, Akio Suzui and Yasuo Butsugan

(Received August 18, 1959)

In the preceding communication[1], the authors presented the structural formula of dihydronepetalactone for matatabilactone which was isolated as one of the physiologically active components for the Felidae animals from the leaves of *Actinidia polygama* Miq. (Matatabi). This estimation was principally based on the fact that two known epimeric nepetalinic acids were obtained by the oxidation of the corresponding hydroxy acid with potassium permanganate. It was pointed out that the alternative formula, i. e., that of isoiridomyrmecin(Ia)[2] or iridomyrmecin (Ib)[2] was unlikely to be the case because of the quite clear differences among the $\nu_{C=O}$ values in the infrared spectra of these substances. The examination thereafter has, however, led to some new informations in regard to the structural problem.



Ia $R_1=CH_3$, $R_2=H$

Ib $R_1=H$, $R_2=CH_3$

A hydroxy acid, $C_{10}H_{18}O_3$(II) of m. p. 109~110°C (*Anal.* Found: C, 63.86; H, 9.72. Calcd: C, 64.49; H, 9.74%) was isolated when I (*Anal.* Found: C, 71.54; H, 9.88. Calcd. for $C_{10}H_{16}O_2$: C, 71.39; H, 9.59%) was, after alkali hydrolysis, treated carefully with acetic acid. By vacuum sublimation II was converted into a lactone, m. p. 60°C, $[\alpha]_D^{21}-67.6°$ (c 0.10, carbon tetrachloride)(III), from which the hydrazide(IV) of II, m. p. 119~120°C (*Anal.* Found: N, 14.11. Calcd. for $C_{10}H_{20}O_2N_2$: N, 13.99%) was derived. The physical properties of II—IV are respectively very similar to those of the compounds of Ia series. The mixed fusion tests and the

1) T. Sakan, A. Fujino, F. Murai. Y. Butsugan and A. Suzui., This Bulletin, **32**, 315 (1959).
2) G. W. K. Cavill and H. D. Locksley, *Australian J. Chem.*, **10**, 352 (1957).

comparisons of the infrared spectra of the samples of III and IV proved their identities with those that have been found by the Australian chemists. The authors are deeply indebted to Dr. G. W. K. Cavill for his kind offers.

It was difficult to seperate II completely from I, and accordingly, the residual part is as yet non-crystalline. Although attempts to obtain the other component in a pure state have been up to now without success, it is likely that matatabilactone is a mixture of Ia and Ib.

Institute of Polytechnics
Osaka City University
Kita-ku, Osaka