Isolation of a New C_{14} Hydrocarbon from North Indian Vetiver Oil

Recent communications[1,2] report on the isolation of many new terpenoids from vetiver oil (*Vetiveria*, Zizanioides Linn, Bharatpur variety). Punjab variety of the oil has been also studied[3] and its over-all resemblance to the Bharatpur variety has been established. The present paper reports on the isolation and partial characterization of a new C_{14} hydrocarbon from the Punjab variety of the vetiver oil. The leavo-rotatory hydrocarbon fraction of the oil $[\alpha]_D^{22} - 30°$ was isolated by column chromatography of the oil over alumina. To learn about the nature of the carbon skeletons, the hydrocarbon mixture was dehydrogenated with selenium. On the basis of TLC on plates of silica gel G impregnated with trinitrobenzene, the dehydrogenation mixture was shown to consist of mainly Cadalene (I) and 1,6-dimethyl-4-ethyl naphthalene (II) in the ratio (70:30% VPC) respectively. 1,6-Dimethyl-4-ethyl naphthalene points to the possibility of the presence of C_{14} hydrocarbons with the rare khusilane[4,5] (III) carbon skeleton. Isolation of the hitherto unknown C_{14} diethynoid dextro-rotatory hydrocarbon in a pure form was possible by elaborate column chromatography over silica gel impregnated with silver nitrate. The course of separation was carefully followed by subjecting each fraction to dehydrogenation. The fractions which gave mainly 1,6-dimethyl-4-ethyl naphthalene were mixed together. This gave a dextro-rotatory fraction which showed the presence of at least 3 clearly visible spots, one being major. The major component was isolated by preparative TLC to afford a new hydrocarbon $C_{14}H_{22}$ (found: C, 88.15; H, 11.98. $C_{14}H_{22}$ requires C, 88.35; H, 11.65%), bp 115° bath/2 mm, $[\alpha]_D^{20} +124°$. Its IR-spectrum showed the presence of both methylenic (>C=CH_2, 3075, 1642 and 892 cm^{-1}) and trisubstituted double bond (>C=C<H, 1665 and 835 cm^{-1}). The hydrocarbon on dehydrogenation afforded 1,6-dimethyl-4-ethyl nephthalene (II) as confirmed by mp and mixed mp determination of the TNB complex with an authentic sample. Presence of 2 double bonds was confirmed by catalytic hydrogenation which afforded a tetrahydroproduct $C_{14}H_{26}$. The IR-spectrum of the tetrahydroderivative was superimposable on that of khusilane[4] (III) earlier prepared from the aldehyde khusilal (IV). These data, therefore, conclusively show that the new hydrocarbon is another rare nor-terpenoid with the khusilane carbon framework. This is the first report of the isolation of a C_{14} hydrocarbon. Work on structure determination of this hydrocarbon is in progress and will be published separately.

Zusammenfassung. Isolierung und Strukturaufklärung eines ungewöhnlichen Terpen-Kohlenwasserstoffs aus nordindischem Vetiver-Öl.

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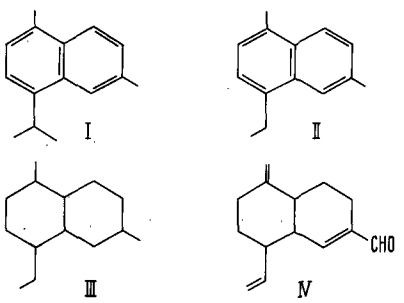

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Effect of Ammonium Ions on the Growth of *Aspergillus nidulans*[1]

In earlier studies[2] we have shown that one of the indirect effects of biotin deficiency is an increase in protein content of the mould *Aspergillus nidulans*. In continuation of these studies we observed that there is more utilization of ammonium ions in biotin-deficient culture as compared with normal, thus indicating a relation between the biotin status of the culture and the cellular permeability.

Earlier KINOSHITA[3], while studying glutamic acid fermentation in *Micrococcus glutamicus*, has reported that in biotin-deficient cells glutamate can rapidly flow out of the cell, due to the change in cell permeability. Later GAVIN and UMBREIT[4] demonstrated that biotin deficiency in *Escherichia coli* caused a change of the permeability barrier evidenced by leakage of internal solutes, such as glutamic acid, and penetration of impermeable substances. Therefore in the present investigation we have made a comparative study in the normal and biotin-deficient *A. nidulans* of the following: a) relative growth pattern of the mould on different nitrogen sources, b) ammonium ion utilization, and c) lipid content of the cell wall.

The media composition, cultural conditions and harvesting of the mould was similar to that described earlier[2]. Ammonia was determined by the method of FAWCETT and SCOTT[5]. Nitrate reductase activity was determined

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