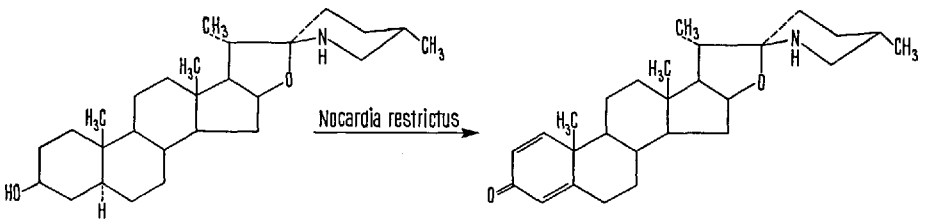
Microbiological Dehydrogenation of Tomatidine

Although the microbiological dehydrogenation of steroids has already become a well-known procedure, such dehydrogenation is scarcely known to occur with steroidal sapogenins and steroidal alkaloids[1]. Diosgenin is dehydrogenated by *Fusarium solani*; the yield, however, is high only if diosgenin is previously transformed to diosgenone[2]. Conessine can be dehydrogenated by *Gloesporium cyclaminis*[3] or *Stachybotrys parvispora*[4] to 4-conenin-3-one. Otherwise only hydroxylation of conessine[5–7], tomatidine[8] and solasodine[9] have been observed.

Our attempts at dehydrogenation of tomatidine and tomatidone by *Fusarium solani* have not been successful[10]. On the other hand, dehydrogenation of tomatidine by *Nocardia restrictus* has been achieved yielding 60% of 1,4-tomatadiene-3-one.

Incubation of tomatidine with *Nocardia restrictus* yielded, as the main metabolite, a crystalline substance:



Tomatidine 1,4-Tomatadiene-3-one

mp 242–245°; TLC homogeneous with the solvent system cyclohexane-ethylacetate (1:2); visualized by spraying with 50% sulfuric acid. The mass spectrum showed a M^+ ion 409, corresponding to a loss of 6 hydrogen atoms from the tomatidine molecule (calc. for $C_{27}H_{39}O_2N$: 409) and, in addition, intense peaks at *m/e* 138 and *m/e* 114, typical for the unchanged tomatidine rings E and F. The presence of the peak at *m/e* 288 corresponding to M-121 points to the 1,4-diene-3-one structure of ring A[11]. The absorption maximum at λ_{max}^{EtOH} 244 nm (ε 15,400)[12] and the IR-spectrum showing absorption bands at 1660 cm^{-1} (3 C=O), 1622 cm^{-1} (1:2 C=C) and 1605 cm^{-1} (4:5 C=C)[13] are in agreement with the above structure of ring A. Therefore, the structure of the metabolite is that of 1,4-tomatadiene-3-one.

Zusammenfassung. Mit Hilfe von *Nocardia restrictus* wurde aus Tomatidin in 60% Ausbeute 1,4-Tomatadien-3-on erhalten.

I. BELIČ and H. SOČIČ[15]

Biochemical Institute of the Medical Faculty, University of Ljubljana, and Chemical Institute 'Boris Kidric', Ljubljana (Yugoslavia), 30 November 1970.

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Lecithin-Chloroform Interaction as a Model for the Action of General Anesthetics

Water has been proposed by PAULING[1] and MILLER[2] as the primary reactant with non-hydrogen-bonding anesthetic molecules. The formation of anesthetic-water clathrates has been thought possible under physiological conditions if stabilizing agents other than the anesthetic molecule were also operating. The charged side chains of proteins were considered to act as stabilizers on the basis of their analogy with alkylammonium derivatives, which are known to form clathrates with water.

We thought[3] that lecithin would have been a more suitable stabilizer, and here we present some data on the in vitro interaction between chloroform ($CHCl_3$) and synthetic lecithin, and on the stabilizing power of a number of compounds in respect to $CHCl_3$ hydrates.

The escaping tendency of $^{14}CHCl_3$ (GMBH Products) was studied in the presence of DL-α-dipalmitoyl-lecithin, glutathione, choline, phosphocholine, palmitic acid and mixtures of palmitic acid and phosphocholine (Table I). All reagents were Fluka, AG, Buchs products.

The effect of lecithin concentration (Table II) and temperature (Table III) on $^{14}CHCl_3$ evaporation were

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