with projections of pin models. Each chapter is headed in very thick type, which contrasts badly with the lightly printed tables and makes for strain in reading. The amount of descriptive material is more than adequate for a year course but the publication as a whole includes much unnecessary information (*e.g.*, "a new neoprene plant at Deepwater, N. J., established by E. I. du Pont de Nemours and Company, began operation in 1939"), many unnecessary models, figures and electronic formulae, and is not appealing in format. The analogy of negativity with femininity is not allowable in a civilization now reputed to be well on the way to a matriarchy.

GARFIELD POWELL

SPECIAL ARTICLES

THE VERATRINE ALKALOIDS. XIV. THE CORRELATION OF THE VERATRINE ALKALOIDS WITH THE SOLANUM ALKALOIDS[1]

FROM studies to be published elsewhere, evidence has been accumulating which has caused us to propose revisions of the older formulations of a number of the alkaloids of *V. album, viz.*, jervine, rubijervine and germine, which had been considered to be C_{26} compounds, to $C_{27}H_{39}O_3$, $C_{27}H_{43}O_2$ and $C_{27}H_{43}O_8$, respectively, so that like cevine, also $C_{27}H_{43}O_8$, they are C_{27} derivatives. Also, evidence has been obtained which suggests that they are built up, if not on a regular, at least on a modified sterol structure.[2] The fact that they are probably C_{27} derivatives is at once most suggestive in this respect.

The alkaloids of the solanum species, such as the alkaloidal aglycone solanidine of potato shoots, appear to have been definitely correlated with the sterols. Thus from the solanidine derivative, solanidiene, on dehydrogenation with selenium, Soltys and Wallenfels[3] reported the formation of the characteristic sterol degradation product, methylcyclopentenophenanthrene. Rochelmeyer[4] confirmed this and at the same time recorded a similar observation with solasodine. In the last instance, there was also obtained a pyridine base which was characterized as a picrate (m. p. 140–142°). However, its identity or homogeneity was not established and no analytical data were given.

It has now occurred to us that this base could have been identical with the 2-ethyl-5-methylpyridine which we have found to be a characteristic degradation product of all the veratrine alkaloids. We have, therefore, repeated the investigation of the dehydrogenation of solanidine obtained from potato sprouts.

The volatile material which distilled when a mixture of 2.1 gm of solanidine and 6 gm of selenium was heated at 340° for 2 hours was separated into basic and neutral fractions. The former was fractionated in a microfractionating column 5 cm in length (Table 1).[5]

TABLE 1

Fraction	Bath temp.	Pressure mm	Wt. in mg of fraction	Micro b.p.	Analysis	
					C	H
1	92°	30	30	171°	79.15	8.79
2	92°	30	40	173°	79.32	9.21
3	95°	30	40	176°	79.00	9.09
4	120°	13	30	186°	79.70	9.40

The micro boiling point of 2-ethyl-5-methylpyridine[6] is 171°. (Analysis: $C_8H_{11}N$. Calculated. C 79.27, H 9.15.)

A picrate prepared from fraction 1 melted at 142–144° (micro m. p.) and proved indistinguishable from the picrate obtained from the cevine degradation product. A mixed melting point showed no depression. (Analysis: $C_8H_{11}N \cdot C_6H_3O_7N_3$. Calculated. C 47.98, H 4.03. Found. C 48.21, H 3.91.)

The investigation of the much less volatile hydrocarbon dehydrogenation fraction is now in progress and will be reported at a later time. However, the isolation of ethylmethylpyridine in such good yield from solanidine, taken together with the fact that the veratrine alkamines, like the solanum aglycones, can be C_{27} compounds, makes apparent at once the close correlation of the two groups of alkaloids and, therefore, of the veratrine alkaloids with the sterols.

It may be pointed out in this connection that the recent interest[7] which has attached to the study of the cardiac action of veratrine recalls to mind that the digitalis compounds are not only unsaturated lactones but also sterol derivatives. This raises the question whether the cardiac action of both the cardiac glycosides and veratrine is not a property inherent in the sterol nucleus itself, once given the proper supporting groups in certain positions and the necessary stereochemical configurations.

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