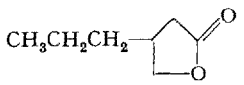
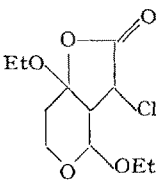
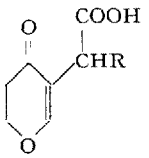


XXII

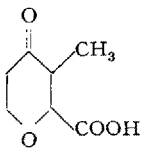


XXIII

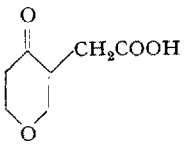
The expression is a satisfactory one in all respects for the product $C_{11}H_{17}O_5Cl$ obtained by the BERGEL group. This view further implies that the chloro-acid, $C_7H_7O_4Cl$, (now known as chlorodesoxypatulinic acid[1]) obtained by the action of warm dilute sulfuric acid on (XXIII), has the structure (XXIV: R = Cl) and that the acid $C_7H_{10}O_4$, obtained by reduction of the chloroacid, and formulated by BERGEL *et al.* as (XXV), is in fact the tetrahydro-γ-pyrone-3-acetic acid (XXVI). The latter de-



XXIV



XXV



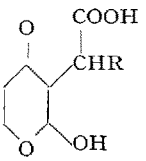
XXVI

duction has been rigorously confirmed by experiments in Zürich[1] and Cambridge[2]. (It may be noted that strong evidence against the structure (XXV) for the acid $C_7H_{10}O_4$ was long since available in the observation by the BERGEL group that the substance was transformed by hydriodic acid into a *diiodo*-acid $C_7H_{10}O_3I_2$; it can hardly be doubted that (XXV) in this reaction would suffer reductive cleavage of the C—O link α to the carboxyl group, with formation of a *monoiodo*-acid $C_7H_{11}O_3I$).

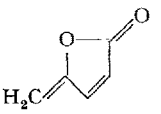
The very valuable and interesting recent degradative studies of the PLATTNER group[1] likewise are readily interpretable in terms of the structure (I). Thus, patulin was converted directly to the chloro-acid (XXIV: R = Cl) by the action of hydrogen chloride in *moist* ether. Further, the direct hydrogenation of patulin in *aqueous* media led to the formation of the acid (XXIV: R = H). Although a number of alternate reaction paths for these processes present themselves, the simplest involves the addition of hydrogen chloride, in the first case, or hydrogen, in the second, to the double bond which remains after hydrolytic cleavage of the lactone ring. These changes will lead to (XXVII: R = Cl *or* H), from which by obvious processes the observed products may be derived.

[1] B. G. ENGEL, W. BRZESKI, and PL. A. PLATTNER, Helv. chim. acta *32*, 1166 (1949); *id.*, *ib.* *32*, 1752 (1949).

[2] R. B. WOODWARD and G. SINGH, J. Amer. Chem. Soc. *71*, 758, (1949).



XXVII



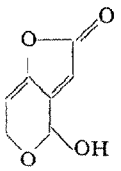
XXVIII

In view of the fact that interest in patulin first devolved from its powerful antibiotic properties, it is perhaps pertinent to point out that the structure (I) bears a strong resemblance to that of protoanemonin (XXVIII), whose antibiotic properties are well-known[1].

Few known substances contain as many reactive groupings, combined so compactly, as does patulin, and the chemistry of the antibiotic is more than ordinarily intricate. But the structure (I) is an eminently satisfactory vehicle for the interpretation of all the known facets of the chemistry of patulin, and in our view it is unquestionably correct.

Zusammenfassung

Die Erwägungen, welche die Autoren zu der Struktur I für Patulin führten, werden kurz beschrieben, und es wird gezeigt, daß das chemische Verhalten des Naturstoffes in jeder Hinsicht durch diese Strukturformel zu erklären ist.



I

[1] B. C. SEEGAL and M. HOLDEN, Science *101*, 413 (1945). – H. BAER, M. HOLDEN, and B. C. SEEGAL, J. Biol. Chem. *162*, 65 (1946).

Congrès

FRANCE

Le Congrès international de Microscopie électronique

aura lieu à Paris du 14 au 22 septembre 1950

Pour tous renseignements on peut s'adresser au Dr C.-A. BAUD, Laboratoire de morphologie ultrastructurale et fonctionnelle, rue Ecole de Médecine, 20, Genève.