The retinal branch, cut transversely, is filled with blood, whereas the choroidal branch, cut longitudinally, is empty.

The function of subendothelial cushions is usually described as regulatory; that is, when the musculature of the vessel wall contracts, the swelling of the cushions helps to occlude the lumen. If this be true, the function of the cushions I have described may well be to diminish the blood flow to the choroid, while at the same time their disposition is such that they may also help to maintain the retinal circulation by holding the mouths of the thin-walled retinal vessels open.

The presence of similar cushions would presumably occur in the eyes of other animals in which the retinal supply is entirely derived from the ciliary arteries. This point is now being investigated, and a more detailed description of the cushions will be published elsewhere.

I should like to thank Dr. F. Jacoby for much helpful advice and criticism, and Mr. A. Welch for taking the photomicrographs.

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[1] Gallas, J., Biologicke Listy, Prague, 29/3, 129 (1948) (abstract in *Excerpta Medica*, 3/1353; 1949).
[2] Wolff and Davies, *Brit. J. Ophthal.* (Nov. 1931).

Hydrolysis and Metabolism by Soil Bacteria of Benzoyl-D-Phenylalanine

Since Kögl and Erxleben showed, in 1939, that D-glutamic acid can be isolated from cancerous tissue, D-peptidases have been the subject of many researches. Kögl and Erxleben's demonstration seems to have particular interest, when considered together with the fact that penicillins, on acid hydrolysis, yield an amino-acid of D-configuration, penicillamine, on one hand, and the fact that both antibiotics, tyrocidin and gramicidin *S*, give D-phenylalanine as their hydrolysis product, on the other. While engaged in the study of capability of soil bacteria to metabolize benzoic acid and its related compounds, and some amino-acids[1], we have recently observed that, of thirty-four strains of soil bacteria employed in our experiment, two strains, *KT*82 and *KT*83, have the ability to utilize benzoyl-D-phenylalanine (melting point 139°–140°; $[\alpha]_D^{13} = -14{\cdot}9$) as well as benzoyl-L-phenylalanine (melting point 139°–140°; $[\alpha]_D^{13} = +14{\cdot}8$) as the sole source of carbon and nitrogen.

The constituents of the culture medium used in the experiment are as follows: K_2HPO_4, 0·1 gm.; $MgSO_4.7H_2O$, 0·05 gm.; 1 per cent $CaCl_2.6H_2O$, 2 drops; 1 per cent $FeCl_3.6H_2O$, 1 drop; organic substance to be tested, 0·2 gm.; distilled water, 100 c.c.; *p*H 7·0–7·2 (adjusted with 10 per cent sodium hydroxide). Thus, we were able to demonstrate that both strains, *KT*82 and *KT*83, can be transferred without any reduction in their rate of population growth in the above medium. One other strain, however, *KT*84, can grow in the medium containing benzoyl-L-phenylalanine, but not at all in the medium containing benzoyl-D-phenylalanine.

The three above-mentioned soil-bacteria strains were then tested for their hydrolytic activity upon benzoyl-D-phenylalanine as follows: 897 mgm. (1/300 *M*) benzoyl-D-phenylalanine suspended in 100 c.c. of distilled water was dissolved by the dropwise addition of 10 per cent sodium hydroxide, until the *p*H was 7·0–7·2. After dispersing the bacterial mass grown on an agar slant at 25° C. for two days (corresponding to *c.* 300 mgm. on a dry weight basis) and 2 c.c. of toluene in 100 c.c. of the benzoyl-D-phenylalanine solution, the *p*H was again adjusted to 7·0–7·2, and the mixture thus obtained was allowed to digest at 37° C. After seven days, the mixture, after cooling, was acidified with dilute hydrochloric acid to Congo red. The precipitate was treated with petroleum ether (boiling point 30°–65° C.), and evaporation of the extract yielded a crude product which after further refining with petroleum ether was identified as benzoic acid by the mixed melting point. The yields of benzoic acid were 33 mgm. (8 per cent) for *KT*82 and 137 mgm. (34 per cent) for *KT*83. No trace of benzoic acid was found when a mixture of benzoyl-D-phenylalanine solution, heat-killed *KT*82 and toluene, was used.

It is of interest that the *KT*84 strain differed from *KT*82 or *KT*83 in failing to hydrolyse benzoyl-D-phenylalanine.

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[1] Kameda, Y., and Toyoura, E., *J. Pharm. Soc. Japan* (in the press).

Fungi inhibiting Growth of the Crown-rot Disease Fungus *Sclerotium delphinii* Welch

Sclerotium delphinii Welch is recognized as a highly destructive pathogen of a large number of vegetables and ornamental plants. Efforts during the past twenty-five years to develop practical control of this fungus have met with failure. Some investigators reported a slight benefit with chemicals, but the control achieved was far from satisfactory. Chemical tests by Davey and Leach in 1941[1], on a closely related organism, *Sclerotium rolfsii*, revealed that, of the seventeen water-soluble chemicals tested, only formalin at dilutions of 1 : 100 and applied at 3 gallons per sq. ft. of soil surface was effective. More recently, chemicals were also tried by Thomas Laskaris, while working on diseases of delphinium at the New York Botanical Garden. Because these and other workers were unsuccessful in finding a chemical control for this highly destructive fungus, an attempt has therefore been made, at the suggestion of Dr. P. P. Pirone, plant pathologist of the New York Botanical Garden, to achieve control by biological methods.

The early work involved attempts to infect sclerotia of *S. delphinii* with the fungus *Coniothyrium minitans* reported by W. A. Campbell[2] in 1947 as a parasite of sclerotia of *Sclerotinia sclerotiorum* and *Sclerotinia minor*. *C. minitans* was found incapable of infecting sclerotia of *S. delphinii*.

The second phase was a search for fungus and bacterial parasites of sclerotia of *S. delphinii*. Hundreds of sclerotia occurring in naturally infested