An attempt was made to ascertain whether phenylserine acted as a whole molecule or whether the stimulation of proteosynthesis was caused by some of its enzymatic decomposition products. Glycine was considered as the most likely product of the splitting of phenylserine. It was found in the experiments with phenylserine-1-^{14}C that this analogue was incorporated into the proteins of the strain of *E. coli* requiring serine-plus-glycine approximately in the same quantity both in the medium with glycine and serine and that without these amino-acids. It was demonstrated in further experiments that phenylserine is broken down by this mutant to benzaldehyde and glycine. The amount of glycine formed is less than 1 per cent of phenylserine during 2 hr. at 30°C. This was shown chromatographically with autoradiographic detection. It is believed, therefore, that the increased incorporation of amino-acids by this strain is caused by the liberation of glycine from phenylserine. This view is supported by analogous experiments with the strain requiring methionine, in which it was demonstrated that incorporation of alanine-2-^{14}C in the presence of phenylserine was not stimulated by the analogue and was the same as in the medium without amino-acids and phenylserine.

These results lead to the conclusion that the mechanism of the synthesis of proteins and its inhibition is strongly influenced by the analogue as well as by the quantity of utilizable amino-acids. The most sensitive step to the presence of the analogue seems to be growth during the first two hours. The synthesis of beta-galactosidase seems to be less affected. The incorporation of amino-acids is influenced only slightly.

Stimulation by phenylserine of beta-galactosidase synthesis in deficient medium is difficult to explain.

Possibly, if the quantity of essential amino-acid is very small, as in the case of glycine produced from phenylserine, only certain proteins are synthesized, especially in the case where the multiplication of cells is markedly reduced by the analogue.

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VIROLOGY

A Virus Disease of *Meloidogyne incognita incognita*, the Southern Root Knot Nematode

This communication reports the presence of a virus in the plant parasitic nematode *Meloidogyne incognita incognita* (Kofoid and White) Chitwood.

While *M. incognita incognita* larvæ in the proximity of a tomato seedling normally move to the roots within an hour[1], in one experiment all the larvæ were extremely sluggish. Usually entrance of the larvæ into the host is accompanied by gall formation, but none of these larvæ formed any galls. A nematode disease was suspected. Microscopic examination of the larvæ failed to indicate any fungi; but the larvæ appeared to be highly vacuolated or filled with unusually prominent oil-like globules. To maintain the disease ½ ml. of a suspension of sluggish nematodes was added to a Petri dish with several thousand surface-sterilized nematode eggs in 30 ml. triple strength modified Heller's solution adjusted to *p*H 6·5[1,2]. As a control, some of the eggs were not inoculated. The larvæ that hatched from the eggs to which the sluggish nematodes had been added were slow and jerky in their movements. The posterior portion of their bodies appeared to lose power of locomotion first. Many of them died soon after emerging whereas the control larvæ were normal. Upon death the infected larvæ were in various shapes, but usually not in the elongated shape of a relaxed nematode. The disease was maintained for the next three weeks by transferring six diseased larvæ every week into a dish of healthy, surface-sterilized eggs.

Having found that the disease could be transmitted, we tested the possibility that it was caused by a virus. The contents of several dishes containing diseased larvæ were pooled and filtered through two filter sheets of type *ST*–3 and size *L*–6 in a Seitz filter, which had been pretreated by filtration of 50 ml. ½ per cent neopeptone solution containing 0·05 per cent 'Antifoam *A*' (Dow) and then sterile distilled water. Aliquots of filtrate added to sterile nutrient agar medium failed to indicate the presence of any bacteria or visible micro-organism. In addition, two experiments were conducted whereby a bacterial suspension of *Corynebacterium poinsettiae* Starr and Pirone, which averages 0·3–0·8 by 1·0–3·0 μ in size, was added to the suspension of diseased nematodes prior to filtration. Two loopfuls of each of ten 2-ml. aliquot samples of filtrate were transferred to nutrient broth but no growth was visible. However, growth of the bacteria was observed in comparable controls. Another aliquot was added to a batch of healthy surface-sterilized *M. incognita incognita* eggs in triple strength modified Heller's solution adjusted to *p*H 6·5; the remainder of the nematode eggs were maintained as controls. Larvæ from both sets of eggs were placed, one week later, in the vicinity (3 mm. from roots) of tomato seedlings growing on an agar medium. The control larvæ reached the roots within 1 hr.; the other larvæ either did not reach the roots at all or required more than 3 hr. to do so. A Seitz filtrate prepared from the suspension in which the latter nematodes had emerged spread the disease to another sample of healthy eggs. These observations indicate that the infectious agent could pass through a Seitz filter and that its virulence was not lost by serial passage.

The fact that this disease of *M. incognita incognita* larvæ is transmitted by a filterable agent indicates a virus as the cause. Investigations are under way to characterize further the filterable agent, to determine its host range, and to employ its disease-producing power as a practical control of nematodes.

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