

of our variant was obviously brought about by a long-lasting symbiosis with the *Paracolon*. This could be reproduced, to a certain extent, by the association of the two strains for some weeks.

So far as we are aware, this is the first time that the induction of a rather stable transformation of a bacterial strain by its symbiosis *in vivo* with another one has been recognized as such and could be experimentally reproduced. A detailed account of our experiments is to be published elsewhere.

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- ¹ Edwards, P. R., and Ewing, W. H., "Identification of Enterobacteriaceae" (Minneapolis, 1955).
² Fredericq, P., "Actions antibiotiques réciproques chez les Enterobacteriaceae." (Gemblou, Belgique, 1948).
³ Fredericq, P., "Ann. Rev. Microbiology", **11**, 7 (1957).
⁴ Hinshelwood, Sir Cyril, "The Chemical Kinetics of the Bacterial Cell", 232 (Oxford, 1946).
⁵ Sinkovics, J., *Act. Microbiol. Acad. Sci. Hung.*, **4**/1, 59 (1957).

An Antifungal Substance in the Corn Plant and its Effect on Growth of Two Stalk-rotting Fungi

IN a recent paper on root and stalk rot of field corn in south-western Ontario¹, we reported that stalk-rotting fungi do not invade the stalks of young corn plants. Subsequent experiments have been designed to investigate whether or not young corn stalks contain substances which will inhibit the growth of these fungi. Loomis *et al.*² found resistance factors in corn which were effective against the European corn borer, *Pyrausta nubilalis* (Hübner), as well as *Penicillium chrysogenum* and other organisms. Virtanen *et al.*³ isolated antifungal factors from wheat, maize and rye which inhibited *Fusarium* sp., *Penicillium* sp. and a wide range of other micro-organisms. In the present communication results are presented which demonstrate that extracts from young corn stalks inhibit growth of two stalk-rotting organisms, *Fusarium moniliforme* Sheld. and *Gibberella zeae* (Schw.) Petch.

Stalks of 52-day-old corn (Pioneer 349) were cut into small pieces and frozen. To 2,000-gm. samples of the frozen material, 1,000 ml. of distilled water was added and the mixture was boiled for 15 min. Juice, extracted from the mixture under pressure, was concentrated to 1,000 ml. by boiling. An ether extract from this juice was assayed for antifungal activity by measuring its effect on growth of *Fusarium moniliforme* and *Gibberella zeae*, which were grown on dehydrated Czapek's agar plus extract for 72 hr. at 25°C. The diameters of the colonies of *Fusarium moniliforme* on eight plates of Czapek's agar (control) and on eight plates of Czapek's agar plus extract averaged 4.10 cm. and 2.23 cm., respectively. This represents an inhibition of growth of 45.6 per cent caused by the extract.

Growth of *Gibberella zeae* was inhibited by 22.5 per cent.

In ten other lines of corn investigated, inhibition of *Fusarium moniliforme* ranged from 56.5 to 63.9 per cent.

The results of these experiments strongly suggest that stalks of young corn are not attacked by *Fusarium moniliforme* or by *Gibberella zeae* because of the presence of an antifungal substance in the young stalks.

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- ¹ Whitney, N. J., and Mortimore, C. G., *Canad. J. Plant Sci.*, **37**, 342 (1957).
² Loomis, R. S., Beck, S. D., and Stauffer, J. F., *Plant Physiol.*, **32** (5), 379 (1957).
³ Virtanen, A. I., and Hietala, P. K., *Acta Chem. Scand.*, **9**, 1543 (1955).
Virtanen, A. I., Hietala, P. K., and Wahlroos, O., *Suomen Kemistehtiä*, **B**, **29**, 143 (1956).

Balanus tulipiformis Ellis on the Atlantic Coast of France

THE presence of *Balanus tulipiformis* Ellis on the Atlantic coast of Europe was recently recorded for the first time¹. It was there noted that this species had been observed on the south-west coast of France from 1956.

It has since transpired that among the barnacles in the Musée de la Mer, Biarritz, there are two lots of *B. tulipiformis*, both found considerably earlier. These specimens had not been recognized as such, and had been labelled *B. amphitrite* Darwin. Samples from each of these exhibits have been examined by Dr. J. P. Harding, who has confirmed their identification as *B. tulipiformis*.

The earlier lot consists of about 30 young or half-grown specimens which had been thrown up on the beach at Messanges (Landes). They were collected by M. Paul Arné, some living and some dead, between 1923 and 1933. In the latter year, M. Arné left Messanges to take up the post of director of the newly opened Musée de la Mer, Biarritz, taking his collections with him. The later exhibit is a group of 10 or so large specimens, all joined together, which was found on a piece of rock brought up with a crayfish trap off Biarritz in 1950.

It is thus established that a quarter of a century has elapsed since *B. tulipiformis* was first found on the south-west coast of France.

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- ¹ Kisch, B. S., *Nature*, **181**, 206 (1958).

Facultative Parasitism and Dietary Change in *Harmolita hyalipenne* Walker

DIETARY change from carnivory to phytophagy has been previously reported from four Eurytomidae; by Nielson¹ from Denmark for an unidentified species of *Eurytoma* parasitic on the larvae of *Cryptocampus angustus* Htg. in willow twigs; by Rimsky-Korsakov² for *Harmolita inquilinum* (the U.S.S.R.) parasitic on *H. rossicum* in the stems of rye; and by Phillips³ for *Eurytoma pater* Girault and *E. parva* Girault^{4,5}