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AMOEBOID ORGANISMS ATTACKING LARVAE OF THE POTATO ROOT EELWORM (*HETERODERA ROSTOCHIENSIS* WOLL.) IN ENGLAND AND THE BEET EELWORM (*H. SCHACHTII* SCHM.) IN CANADA[1])

Met een samenvatting: Amoeboide organismen als aantasters van larven van het aardappelcyste-aaltje (Heterodera rostochiensis Woll.) in Engeland en het biete-cyste-aaltje (H. schachtii Schm.) in Canada

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Amoeboid organisms have been found attacking *Heterodera rostochiensis* in England and *H. schachtii* in Ontario. In both cases the attacks occurred under laboratory conditions on larvae emerging from cysts in water or in root leachate in glass dishes. The English form was recovered with potato eelworm cysts from soils from two locations in Feltwell Fen, Norfolk. The Ontario form was recovered with eelworm cysts from marl soil from a field infested with *H. schachtii* in the Blackwell district, Essex County.

The organisms (fig. 1) appear to be identical with or very similar to the organism found attacking larvae of *H. rostochiensis* in the Netherlands (WEBER, ZWILLENBERG & VAN DER LAAN, 1952), later described as *Theratromyxa weberi* by ZWILLENBERG (1953) who placed it provisionally in the Proteomyxa: Vampyrellidiae. Additional observations on the *in vitro* culture, behaviour, host range and economic importance were published by VAN DER LAAN (1954).

In one aspect of their behaviour, both the English and Canadian organisms appear to differ from the Dutch form; their amoebae tend to be more individualistic. Hence extensive myxomycetous networks are rarely formed and parasitized nematodes usually occur singly, or at most in small clumps of 3–5, never in the large clumps of 100 or more mentioned by VAN DER LAAN. The Ontario form differs from the Dutch form, too, in its mode of attack in that it may attach itself to any region of the body of its prey, not merely to the head or tail region. The differences, however, may be largely or wholly due to differences in cultural conditions.

As pointed out by VAN DER LAAN, these organisms are not likely to prove of practical importance in biological control of plant nematodes.

[1]) Aangenomen voor publikatie: 4-9-1957.

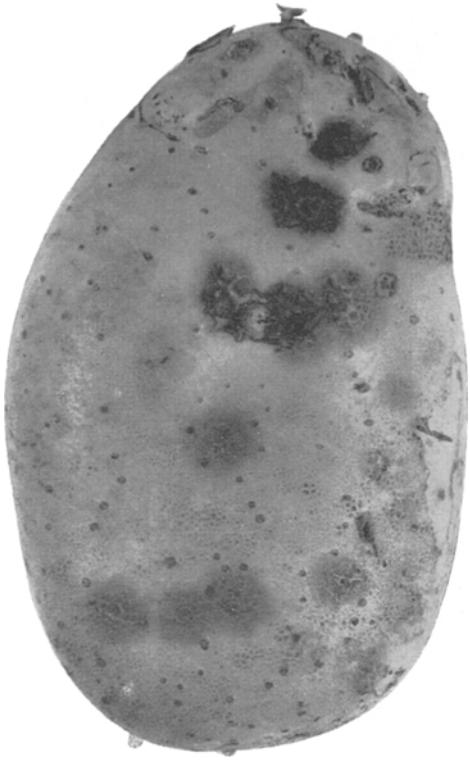
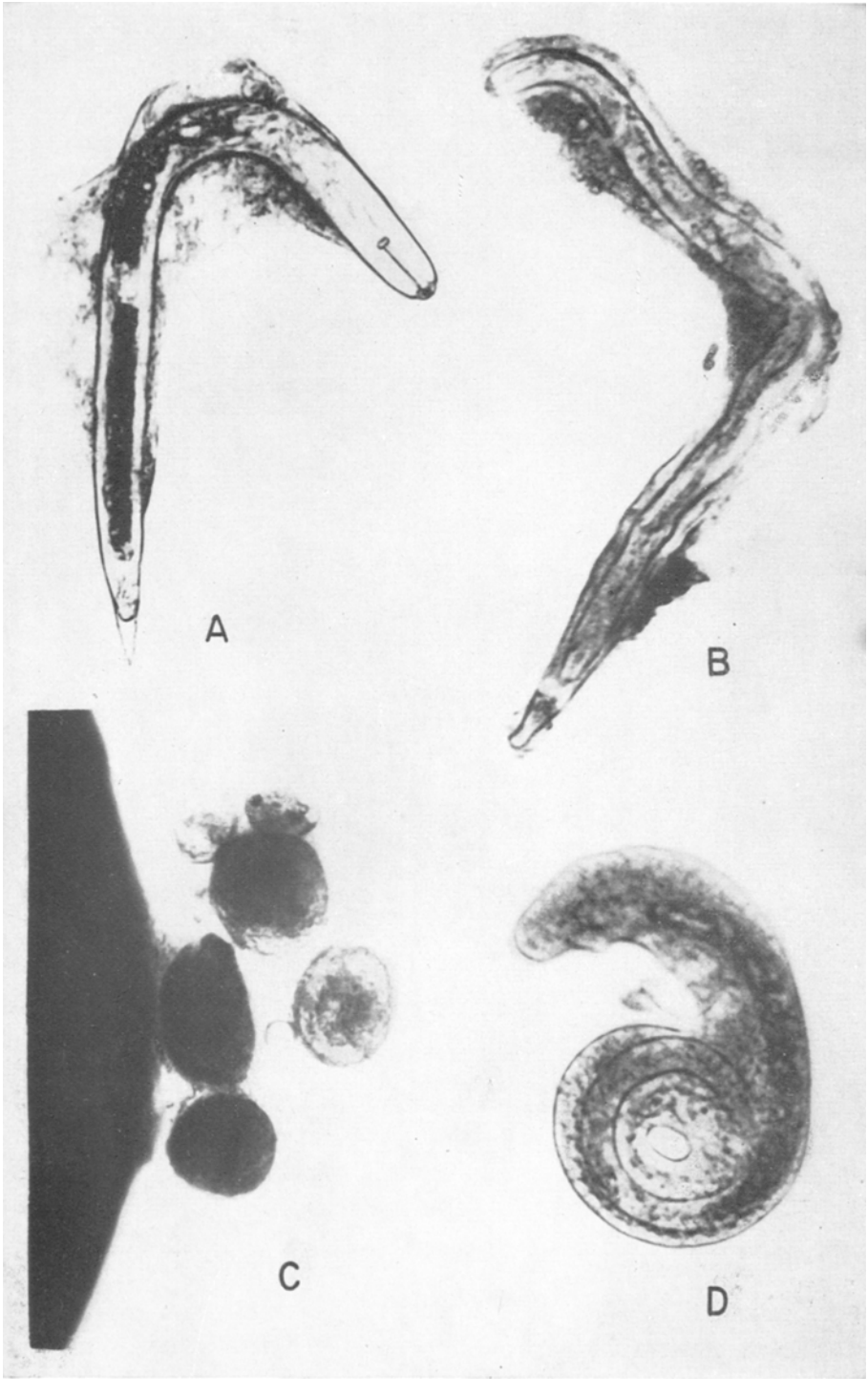


FIG. 1.
Knol van het aardappelras Eersteling met donkerbruine vlekken, die ster- en netvormige barsten vertonen. Ook enige lichter gekleurde vlekken zijn zichtbaar; hierin zijn de barstjes nog niet volledig tot ontwikkeling gekomen

Tuber of the potato variety Duke of York showing dark-brown lesions with star-shaped and reticular cracks. Some lighter coloured lesions are also present; in these lesions the cracks have not yet fully developed

FIG. 2. Knol van het aardappelras Doré met bruine vlekken, die netvormige barstjes vertonen
Tuber of the potato variety Doré showing brown lesions with reticular cracks


A
B
C
D

SAMENVATTING

Amoebe-achtige organismen werden geïsoleerd uit grondmonsters, die cysten van *Heterodera rostochiensis* bevatten en afkomstig waren van twee plaatsen in Feltwell Fen, Norfolk, Engeland en uit grond van een perceel in het Blackwell district, Essex County, Ontario, Canada, dat besmet was met *H. schachtii*. Deze organismen gelijken sterk op *Theratromyxa weberi* ZWILLENBERG, die bekend is als parasiet van het aardappelcysteaaltje in Nederland. Er werden enkele verschillen in gedrag tussen de in Engeland en Canada gevonden organismen en *T. weberi* waargenomen, maar deze kunnen het gevolg zijn van verschillen in kweekwijze.

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FIG. 1. Photomicrographs showing parasitism of *Heterodera schachtii* and *H. rostochiensis* by amoeboid organisms. (× 275 approx.)

A. Larva of *H. schachtii* attacked by organism. Larva still struggling and organism highly vacuolated.

B. Later stage; larva dead, beginning to shrink.

C. Resting stages (hypnocysts) of organism on cyst wall of *H. schachtii*.

D. Coiled larva of *H. rostochiensis*; completely invested by organism (digestive cyst stage).

Aantasting van Heterodera schachtii en H. rostochiensis door amoeboïde organismen (vergroting ongeveer 275 ×)

A. Aangetaste larve van H. schachtii; de larve biedt nog weerstand, de amoebe vertoont vele vacuolen.

B. Later stadium; de larve is dood en verschrompeld.

C. Ruststadia van amoebe op cystewand van H. schachtii.

D. Opgerolde larve van H. rostochiensis, die geheel door amoebe is ingehuld.