

Shot-hole Disease of Stone Fruits caused by *Clasterosporium carpophilum*

PURE cultures of the fungus *Clasterosporium carpophilum* were isolated from recent infections of peach leaves and fruits. Isolation trials showed that the fungus is viable in leaf lesions from March until September. For this purpose, infected parts were washed thoroughly in sterile water and small portions of the diseased tissues were placed on corn-meal agar at 25° C. Hyphal tips were taken from the edge of the growing colonies and these were left to grow on corn-meal slants. In some cases, infected portions were sterilized using, first, 1 per cent silver nitrate solution for two minutes and then sodium chloride for 3-4 minutes and then washing thoroughly in sterile water.

Pathogenicity tests gave successful results by inoculating young peach seedlings (with 8-10 leaves) with a spore suspension of the fungus. Pricking the leaves was essential for getting clear symptoms in a week's time. High humidity was secured by covering the inoculated plants with bell-jars for three days after infection.

The rate of disease-spread was studied in the field. It was shown that the symptoms begin to appear in March (after leaf growth), the severity of the disease rises gradually until May, slows down slightly until September and then rises gradually until the end of the season.

The disease starts more severely in March after wet winters than after dry ones.

Control measures by spraying with Bordeaux mixture 4 : 6 : 50 or 4 : 6 : 100 at flowering time and at setting of fruits were not successful; neither was spraying with 20 or 10 per cent lime-sulphur at the above spraying dates.

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REFERENCES

- Cunningham, G. H., "Fungus Diseases of Fruit Trees" (Brett Printing and Publishing Co., Ltd., Auckland, New Zealand, 1925).
Welsh, M. F., *Proc. Canad. Phytopath. Soc.*, 17, 12 (1950).
Wilson, E. E., Univ. Calif. Coll. Agric. Exp. Sta. Bull. 608 (1937).

A Variable Morphological Character of *Trichomonas vaginalis*

SEVERAL comprehensive morphological studies of *Trichomonas vaginalis* have been published¹. In none is mention made of a striking morphological character I have observed in three different strains of *T. vaginalis*. These strains were originally isolated from vaginal material gathered at the Whitechapel Clinic from patients with vaginitis and are now growing on artificial culture media².

The character takes the form of a variable thickening and rigidity of the terminal one-fourth to one-third of one of the four anterior flagella (Fig. 1). The presence and conspicuousness of this club-like structure varies between strains and between individuals in the same strain. It is conspicuous in most individuals in the W-2 strain, where it was first noticed; conspicuous but somewhat less frequent in the W-1 strain; least frequent in the W-3 strain. In the fourth strain, obtained from Dr. M. G. McEntegart, of the Liverpool City Laboratories, and which has now been in artificial culture for more than two years, the character appears to be absent.

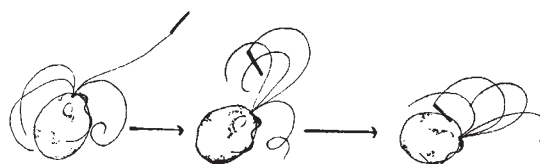


Fig. 1. Clubbed flagellum of *Trichomonas vaginalis* in an active organism

Between individuals, the character varies in conspicuousness from a well-defined rod, about two to three times the diameter of the ordinary flagellum, down to a thin structure which is the same diameter as the rest of the flagellum and is manifested solely by its inflexibility. Characteristically, a single clubbed flagellum is found on an organism. In many individuals it is absent or undetectable; rarely two clubbed flagella are found in a single set of four, but never more than two.

In dividing forms with two sets of flagella I have found several combinations of the clubbing feature: one club in each set of flagella; a clubbed flagellum in one set only; apparent absence of clubbing in both sets.

While it can be observed in those dead organisms in which the flagella are not obscured, clubbing is best seen in the living organism. A 43 × objective with a 10 × eyepiece (or 5 × for greater depth of focus) make a good combination for detecting the character. It is most striking in dark-field preparations, in which the clubbed portion of the flagellum appears brightly luminous.

The clubbed structure was also found in a fresh vaginal specimen. Though difficult to observe because of the large amount of obscuring tissue debris and the extremely active state of the flagella, clubs were present in a small number of the organisms. The structure is not, therefore, a variation arising in artificial culture, but is an intrinsic, if variable, morphological character of *T. vaginalis*.

The function of the club-like flagellar structure of *T. vaginalis* is, at this stage, open to conjecture. Thickening of the tip of a flagellum has been noted in *Leptomonas ctenocephali*³, in which the enlargement is slimy in character and serves as an organ of attachment. The flagellar club of *T. vaginalis*, however, does not appear to be slimy or sticky. Another difference between the two is that in *L. ctenocephali* the thickened flagellum is much shortened, whereas in *T. vaginalis* the clubbed flagellum is never shorter, and at times appears to be longer, than its three associated flagella.

These preliminary observations are recorded to bring this hitherto unreported character of *T. vaginalis* to the notice of protozoal morphologists as a possible additional distinguishing character for the species.

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¹ Powell, W. N., *J. Hygiene*, 24, 145 (1936). Wenrich, D. H., *Amer. J. Trop. Med.*, 24, 39 (1944). Trussell, R. E., "Trichomonas Vaginalis" (Blackwell Scientific Publications, Ltd., Oxford, 1947).

² Feinberg, J. G., *Nature*, 171, 1165 (1953).

³ Lwoff, A., *Zentral. f. Bakt.*, 130, 498 (1930).