

**PHYTOMONAS SP., A TRYPANOSOMATID PARASITE OF TOMATO,
ISOLATED FROM SALIVARY GLANDS OF *PHTHIA PICTA* (HEMIPTERA:
COREIDAE) IN SOUTHEAST BRAZIL**

REGINALDO PEÇANHA BRAZIL; JOÃO EVANGELISTA FIORINI* & PAULO MÁRCIO
FARIA E SILVA*

Departamento de Parasitologia e Biofísica Celular, IBCCF-CCS, Universidade Federal do Rio de Janeiro, 21941,
Cidade Universitária, Rio de Janeiro, RJ, Brasil *Escola de Farmácia e Odontologia de Alfenas, 37130,
Alfenas, MG, Brasil

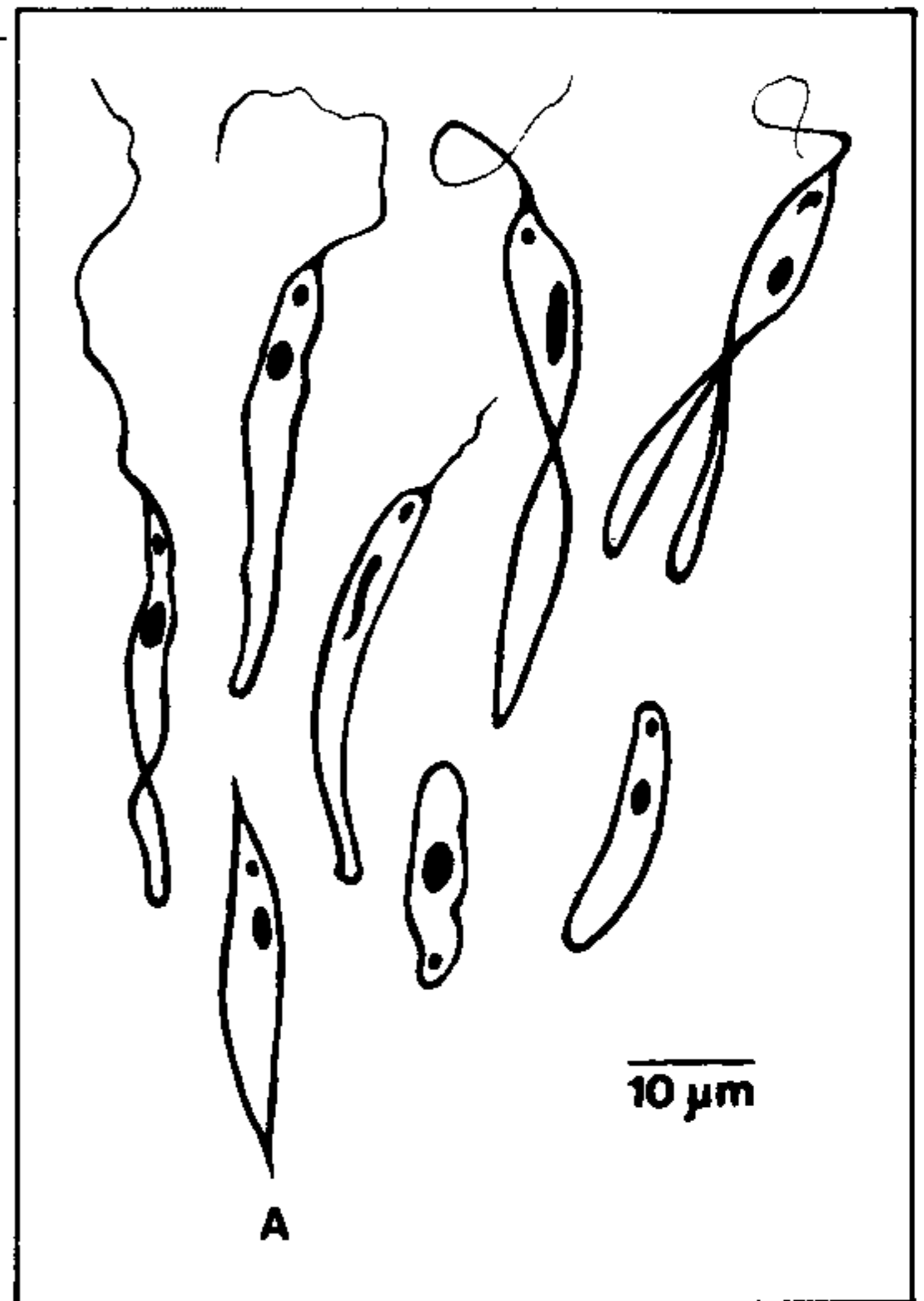
Flagellate protozoa of the genus *Phytomonas* Donovan are plant parasites first seen by A. Lafond (1909, *C. R. Soc. Biol.*, 66: 1011-1013) in the latex of an euphorb (*Euphorbia pilulifera*) from Mauritius. Similar parasites were reported in several parts of the world but in very few instance the parasitism of plants was accompanied by pathological effects (see M. Dollet, 1984, *Ann. Rev. Phytopathol.*, 22: 115-12 for review).

In the last few years studies of *Phytomonas* in Brazil were greatly stimulated as association of parasite with plant diseases became evident (J. L. Bezerra & J. M. Figueiredo, 1982, *Fitopatol. Bras.*, 7: 135-143; E. W. Kitajima et al., 1986, *Phytopathology*, 76: 638-642; J. V. Jankevicius et al., 1987, *Fitopatol. Bras.*, 12: 152).

In 1986 we detected flagellates in the fruits of two Solanacea (*Solanum gilo* and *Lycopersicon lycopersicum*) and similar flagellates were seen in the gut of *Phthia picta* a common predator of tomato in southeast Brazil (J. E. Fiorini et al., 1986, *Mem. Inst. Oswaldo Cruz*, 81: 33, but all attempts to isolate the parasite were unsuccessful.

In the present note we describe our first isolation of a *Phytomonas* from the salivary glands of *P. picta* found naturally infected in Alfenas, state of Minas Gerais, Southeast, Brazil.

Nymphs and adults of *P. picta* (Hemiptera: Coreidae) were collected on tomato plants (*L. lycopersicum*) in the urban areas of Alfenas. Insects were killed at -20°C for 5 min and



Phytomonas sp., isolated from salivary glands of *Phthia picta*, in diphasic NNN medium showing aflagellate forms (A).

washed with a solution of antibiotic (Streptomycin, 5 mg/ml + G. penicillin, 200 IU/ml + Nystatin 50 IU/ml). Digestive tracts and salivary glands were screened for flagellates by phase microscopy in one drop of saline plus antibiotics. Positive digestive tracts or salivary glands were transferred to tubes containing diphasic NNN medium made of agar base and 15% rabbit blood with 0.5 ml overlay of Roitman's Complex Medium. Cultures were maintained at 28°C and transferred weekly to new media. Smears fixed in methanol and stained with Giemsa

were used for light microscopy, drawings and measurements. From 18 *P. picta* examined 5 (27.7%) showed flagellates in their digestive tract and 3 (16.6%) also in salivary glands. Under phase microscopy of positive guts the flagellates showed some variation in size and motility but all were promastigotes. In positive salivary glands two main types of flagellates were seen: typical promastigotes similar to gut forms and small parasites with rudimentary or no flagellum. Proliferation of flagellates in NNN medium was obtained from material of a positive salivary gland. Parasites were always promastigotes but aflagellate forms, similar to these seen in salivary glands were also observed (Fig.). The average body length was 17.3 ± 4.8 μm and 11.0 ± 3.2 μm for the flagellum (measurement of fifty cells). Since our first detection of flagellates in tomato

(J. E. Fiorini et al., *loc. cit.*) a similar trypanosomatid was seen and isolated from tomato and its natural predators, *P. picta* and *Nezara viridula* in south Brazil (J. V. Jankevicius et al., 1989, *J. Protozool.*, 36: 265-271). However the first description of *Phytomonas* from tomato and a phytophagic hemiptera, *N. viridula*, was from Cape Peninsula, South Africa by A. Gibbs in 1957 (*Parasitology*, 47: 297-303) and new isolates from tomatoes and predators from distinct geographic regions should be cautiously identified as the same parasite. Unfortunately there is no culture type of *P. serpens* available to date for comparison with new isolates. It is quite possible that a *Phytomonas* sp. isolated from tomato and *P. picta* in southern Brazil is the same that we isolated but both can hardly be identified as *P. serpens* even on morphological bases only.