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**On a flagellate *Monocercomonas caviae*
(*Chilomitus caviae* FONSECA),
from the caecum of guineapig, *Cavia* sp.**

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With 1 figure in the text.

Introduction.

It is for the last ten years that we have almost constantly found a flagellate in the caeca of guineapigs. This organism possesses certain characters by means of which it can easily be distinguished from *Trichomonas*, *Chilomastix* and other flagellates. Similar organism has also been observed by us from Rat, Lizard and Toad.

From the literature extant on the subject we find that FONSECA (1916) has described a flagellate from the guineapig in Brazil and calls it *Chilomitus caviae*. He defines the new genus in the following way:

Genero *Chilomitus* mihi, 1915. Quatro flajelos anteriores eguaes, citostoma anterior, nao ha axostilo, Especie tipo; *C. caviae*, mihi, 1915.

Lavier however, communicated to WENYON (1926), that he came across a flagellate in the rodent *Viscacia viscacia* of the Argentine, which resembled FONSECA'S *Chilomitus* in many respects and had in addition an axial fibre passing longitudinally through the body.

The genus *Monocercomonas* was founded by GRASSI (1881) for a flagellate parasitic in the larvae of *Gryllotalpa* and *Melolontha*, and designated *Monocercomonas insectorum*. In an earlier work however, (1879) he referred these organisms to the genus *Schedoacercomonas*. SWEZY (1916) however, has correctly pointed out that the three names *Trichomonas*, *Trichomastix* and *Monocercomonas* were used interchangeably by GRASSI and that he was uncertain regarding the structure of those flagellates. The generic characters of *Monocercomonas* therefore, according to SWEZY, are as follows:

'Four equal anterior flagella, arising from one or more blepharoplasts or basal granules, a large vesicular nucleus situated at the anterior end, a slender axostyle arising in the blepharoplast and terminating in the periplast at the anterior extremity of the body.'

'There is neither cytostome, undulating membrane, nor trailing flagellum present.'

'The only authentic species are *M. melolonthae* (GRASSI) and *M. cetoniae* JOLLOS.'

WENYON (1926) has also pointed out this discrepancy in the observations of GRASSI and observes that his *Retortamonas* (*R. gryllotalpae* GRASSI, 1879) has priority over both *Schedoacercomonas* and *Monocercomonas* which becomes synonym of *Retortamonas*. According to WENYON, the flagellate of the genus *Retortamonas* are closely allied to *Eutrichomastix* containing four flagella, one of which is trailing, and a deeply staining axial fibre. Our flagellate however, cannot be identified with *Retortamonas* as it has no trailing flagellum, but is found to agree more with *Monocercomonas* as defined by SWEZY (1916).

If we compare the characters of the two genera *Chilomitux* FONSECA and *Monocercomonas* GRASSI we find that there are more points of similarity than dissimilarity between these two allied genera.

	<i>Monocercomonas</i>	<i>Chilomitux</i>
Size in microns . . .	12—15 × 8—11.	12—17 × 4—5.
Number of flagella . . .	Four, equal, anteriorly	Four, equal, anteriorly
Blepharoplast	one or more	One ¹⁾
Axostyle	Present, on the pellicle	Absent according to FONSECA but according to LAVIER it is present and passes through the body (vide WENYON, p. 310)
Cytostome	Absent	Present, anteriorly
Nucleus	Vesicular	not Vesicular ²⁾

¹⁾ There are two blepharoplasts but viewed laterally four flagella appear to

Figures of *Chilomitus* given by FONSECA are not very definite and moreover it is evident from his description that while describing this flagellate he had the characters of *Chilomastix* in view, with which he has tried to compare it and not with *Monocercomonas*, with which it has a greater resemblance (as shown in the preceding table).

From the description of the flagellate that we have given in this paper, it is evident that it possesses all the characters of a *Monocercomonas* except that it has, in addition, an excavation at the anterior end which can well be compared with the cytostome of a *Chilomitus*. If presence of a cytostome was to be included among the characters of the genus *Monocercomonas*, we feel that there would be no necessity of maintaining the genus *Chilomitus*. Moreover, the former generic name has a priority over the latter and hence *Chilomitus* can be treated as a synonym of *Monocercomonas*. DAS-GUPTA (1935) while describing *Monocercomonas caprae* from Indian goat has also argued on these lines and we agree with him in every respect.

In the light of our observations therefore, the definition of the genus *Monocercomonas* stands modified as follows:

'Four equal anterior flagella, arising from one or more blepharoplasts or basal granules; a slender, deeply staining intracytoplasmic axial fibre arising from a blepharoplast and passing towards the posterior end; a cytostome at the anterior end may or may not be present; neither undulating membrane nor trailing flagellum present.'

Type species: *M. melolonthae* (GRASSI) and *M. cetoniae* JOLLOS.

Material and Methods.

We obtained our material from the caeca of guineapigs which were used for dissection for undergraduate students of our department. During these ten years, we have examined several dozens of specimens and our experience is that infection with this flagellate among guineapigs. *Cavia cutleri* is almost cent per cent.

Smears were fixed in SCHAUDINN'S and BOUIN-DUBOSCQ-BRAZIL'S fluids and stained subsequently in HEIDENHAIN'S Iron-Haematoxylin.

arise from a single blepharoplast or basal granule (see Fig. 1 b). Probably FONSECA made this mistake in his observation.

²) Appears non-vesicular if stained in GIEMSA or LEISHMAN (see Fig. 1 c) but it is otherwise when wet films are stained with Iron-Alum-Haematoxylin.

Smears were also stained in GIEMSA and LEISHMAN'S stain, which it must be confessed, is by far the best method for gaining first hand knowledge about the morphology of small flagellates. In describing the structure of this flagellate, great care has been taken in comparing GIEMSA preparations with those stained in HEIDENHAIN'S Iron-Haematoxylin.

Morphology of *M. caviae* (= *Chilomitius caviae* FONSECA).

It is a pear-shaped organism measuring from 6—17 μ in length and 4—8 μ in breadth. It has got a vesicular nucleus with a central karyosome. There are four anteriorly placed flagella, originating

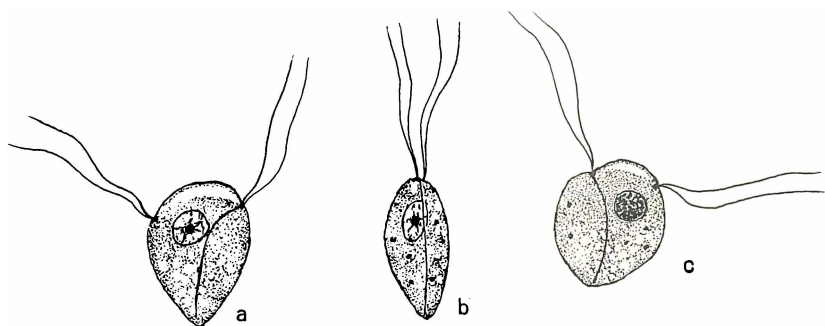


Fig. 1. *Monocercomonas caviae* (= *Chilomitius caviae* FONSECA). $\times 1666$. a Front view from a smear fixed in SCHAUDINN'S fluid and stained with HEIDENHAIN'S Iron-haematoxylin. b Lateral view. Treated as above. c Front view, from an air dried smear stained in GIEMSA stain.

from two anteriorly placed blepharoplasts. There is an excavation at the anterior end which can be compared with the cytostome described by FONSECA for his *Chilomitius*. The two blepharoplasts are connected with each other by a thin chromatic line (see Fig. 1 a). There is an axoneme which arises from one of the blepharoplasts and runs towards the posterior end of the organism and ends within the cytoplasm. The axoneme lies within the cytoplasm as shown by DAS-GUPTA (1935) and does not lie on the pellicle as stated by SWEZY (1916). There is no trace of undulating membrane and none of the flagella show any tendency to form a trailing flagellum. No dividing forms nor cysts have been witnessed by us although we have been examining this organism for the last ten years.

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