Trichospira inversa

Claparède & Lachmann, 1859

Most likely ID: n.a.

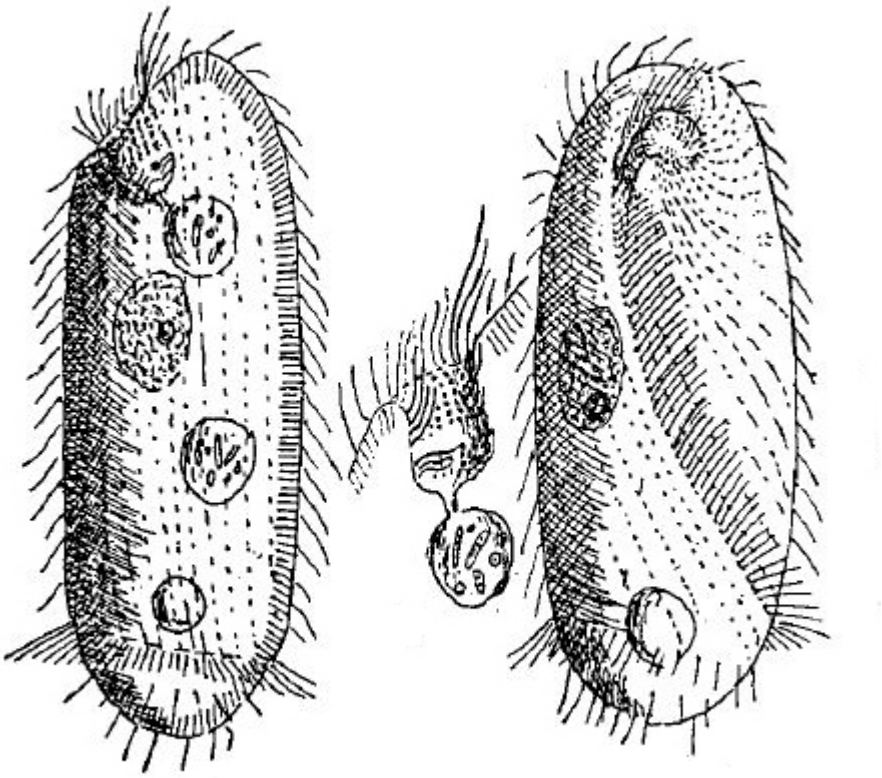
Synonym: n.a.

Sampling location: Ulmisried, Purren pond, Simmelried

Phylogenetic tree: *Trichospira inversa*

Diagnosis:

- body elongated oval, almost parallel sides
- length 70–100 µm
- mouth opening subabical
- spiral double row of cilia run clockwise to posterior end
- spiral row ends in transverse ring posterior
- dense fringe of thin rod-shaped extrusomes beneath pellicle
- contractile vacuole subterminal
- makronucleus oval with a large, adjacent micronucleus
- posterior a tuft of caudal cilia



Trichospira inversa

I find *Trichospira inversa* in some of my sampling sites, but only rarely and irregularly. The species is found exclusively in the uppermost layer of the mud. What all sites have in common is that there is a deposit of fallen leaves. In general, the species seems to occur only rarely and there are only descriptions by the first describers, Penard (1922) and Kahl (1926).

Trichospira inversa has an unusual structure, which only becomes apparent under high magnification. The mouth opening (the vestibulum) is located subapically. A spiral band of cilia originates from there and runs clockwise to the posterior end. There, however, it merges into a transverse ring. Kahl already recognized that these spirall band is consisting of two parallel rows of cilia, separated by less than 1 µm (s. fig. 5).

Very large food vacuoles are often found in the cytoplasm (s. fig. 4). A large, also oval micronucleus is attached to the oval macronucleus (s. fig. 6). The contractile vacuole is clearly subterminal (s. fig. 3 b).

Under the pellicle there is a dense fringe of extrusomes (s. fig. 7 a), which are very thin and, according to my measurements, are quite consistently 4.5 µm long (s. fig. 8). In squashed specimens only a few extrusomes are found, as they are quickly ejected.



Fig. 1 a-c: *Trichospira inversa*. L = 101 µm. Different focal planes of a freely swimming specimen. Obj. 40 X.

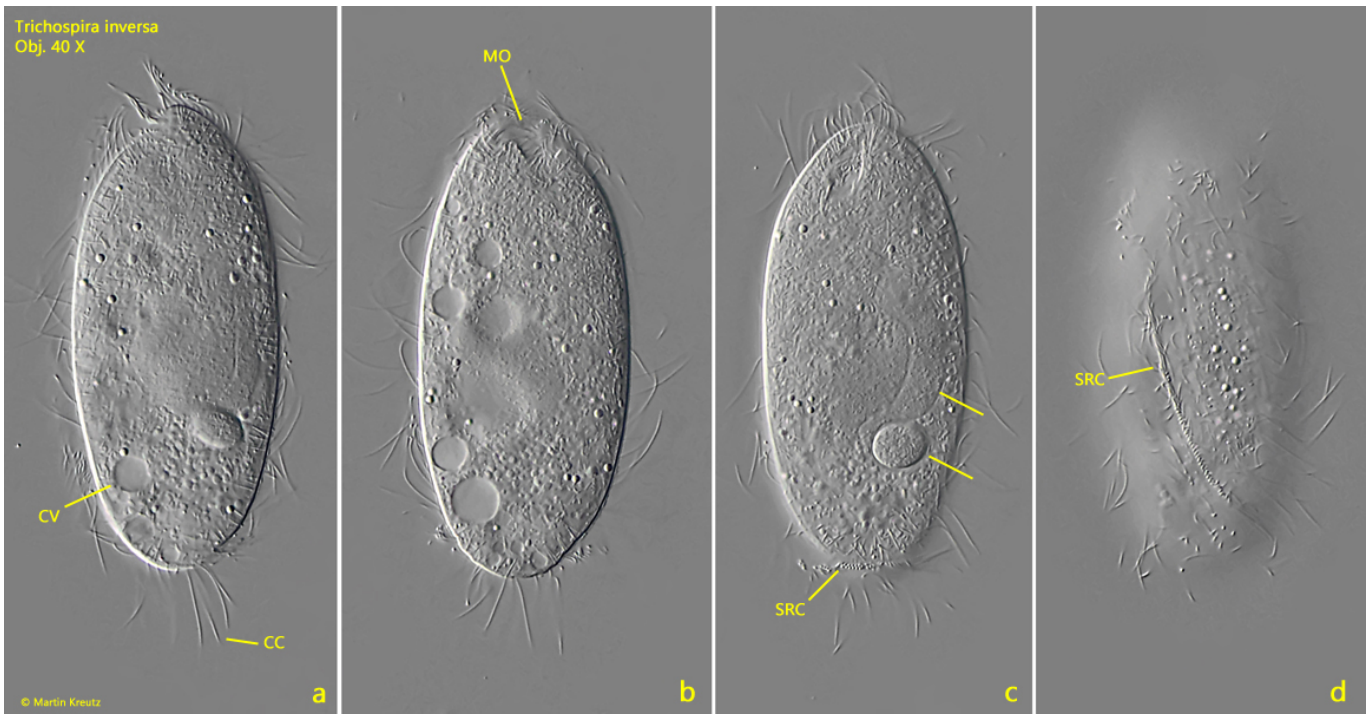


Fig. 2 a-d: *Trichospira inversa*. L = 100 µm. A second freely swimming specimen. Note the spiral row of cilia (SRC) running diagonally over the body in a transverse ring posterior. CC = caudal cilia, CV = contractile vacuole, MO = mouth opening. Obj. 40 X.

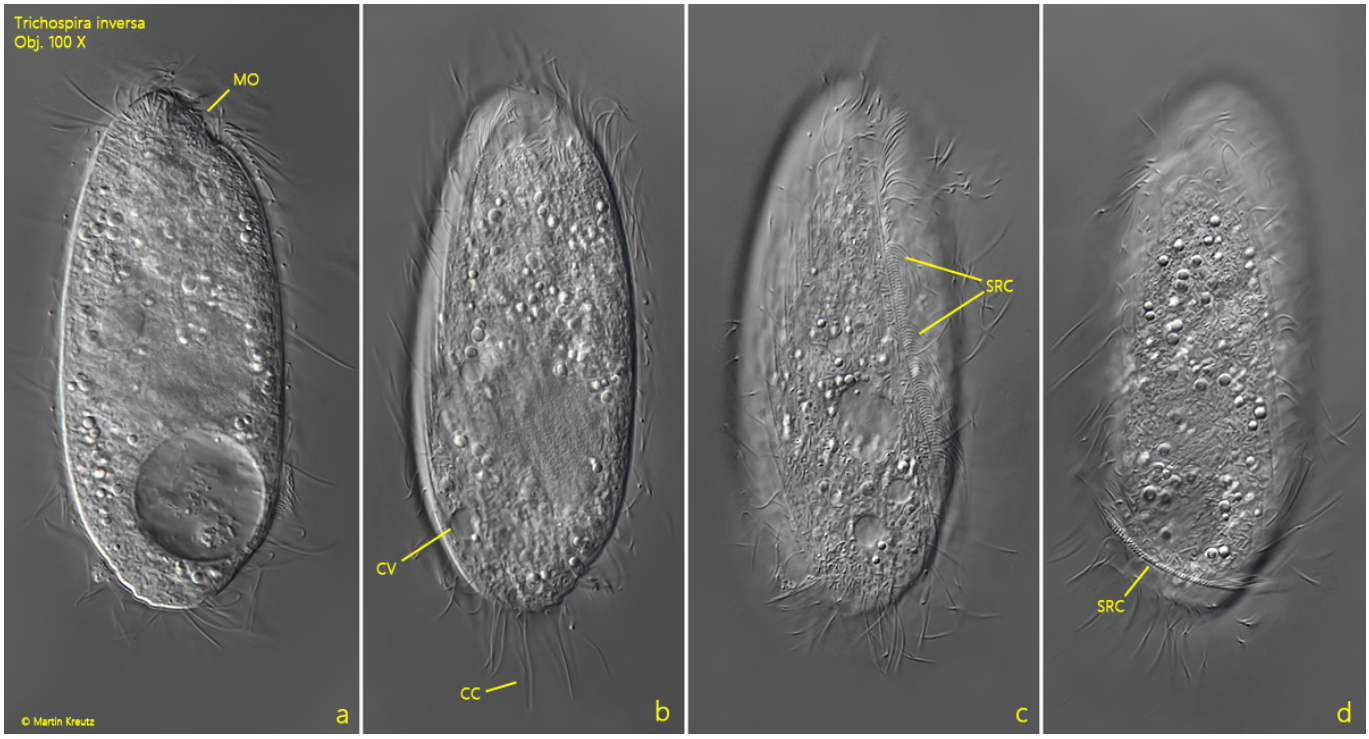


Fig. 3 a-d: *Trichospira inversa*. L = 94 µm. A third freely swimming specimen. CC = caudal cilia, CV = contractile vacuole, MO = mouth opening SRC = spiral row of cilia. Obj. 100 X.



Fig. 4: *Trichospira inversa*. L = 86 µm. A slightly squashed specimen with focal plane on the mouth opening (MO). FV = food vacuoles, Mi = micronucleus. Obj. 100 X.

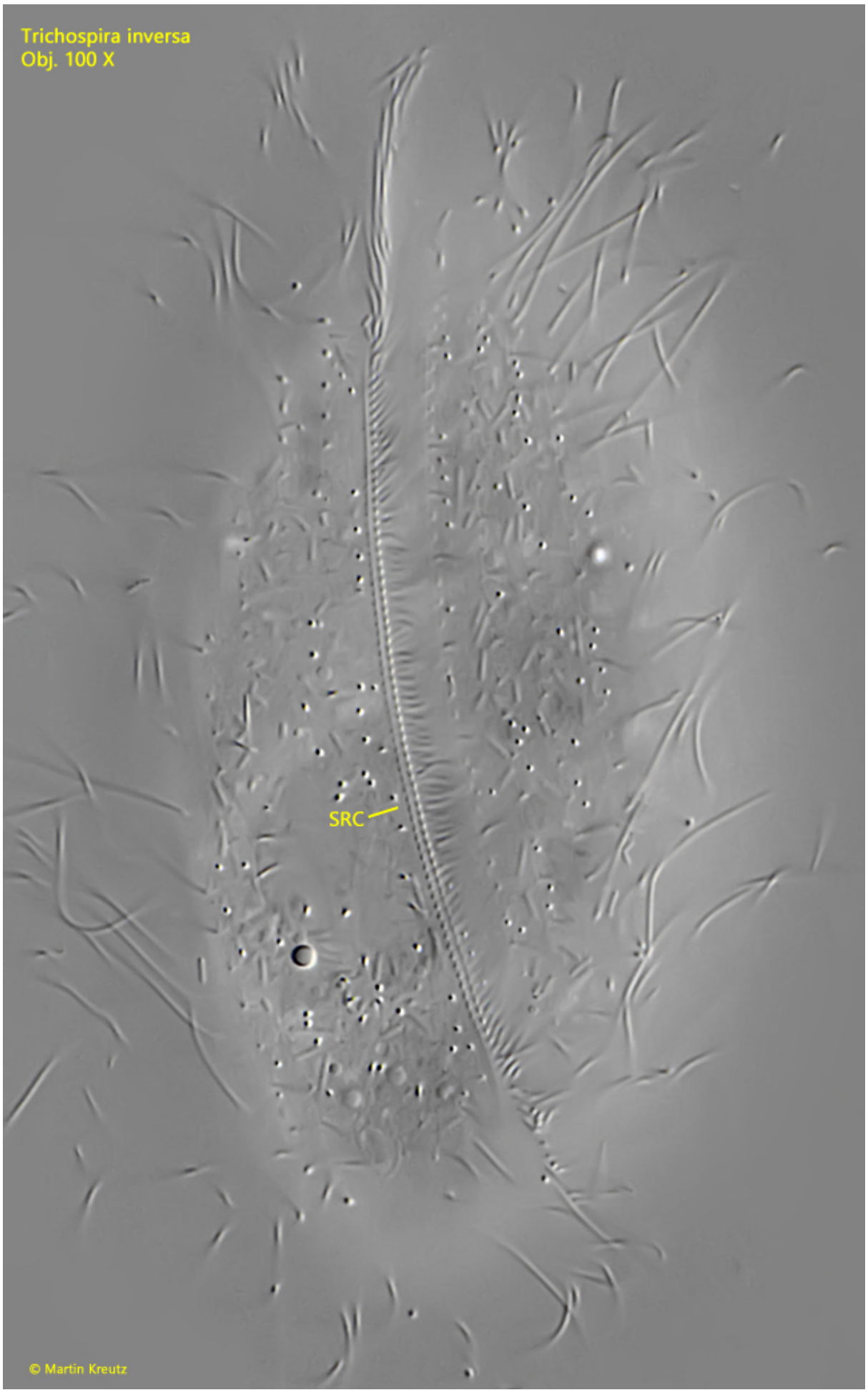

Trichospira inversa
Obj. 100 X
SRC
© Martin Kreutz

Fig. 5: *Trichospira inversa*. The spiral row of cilia (SCR) in detail with focal plane on the basal bodies of the cilia. It is a double row with a distance of only 0.7 µm. Obj. 100 X.

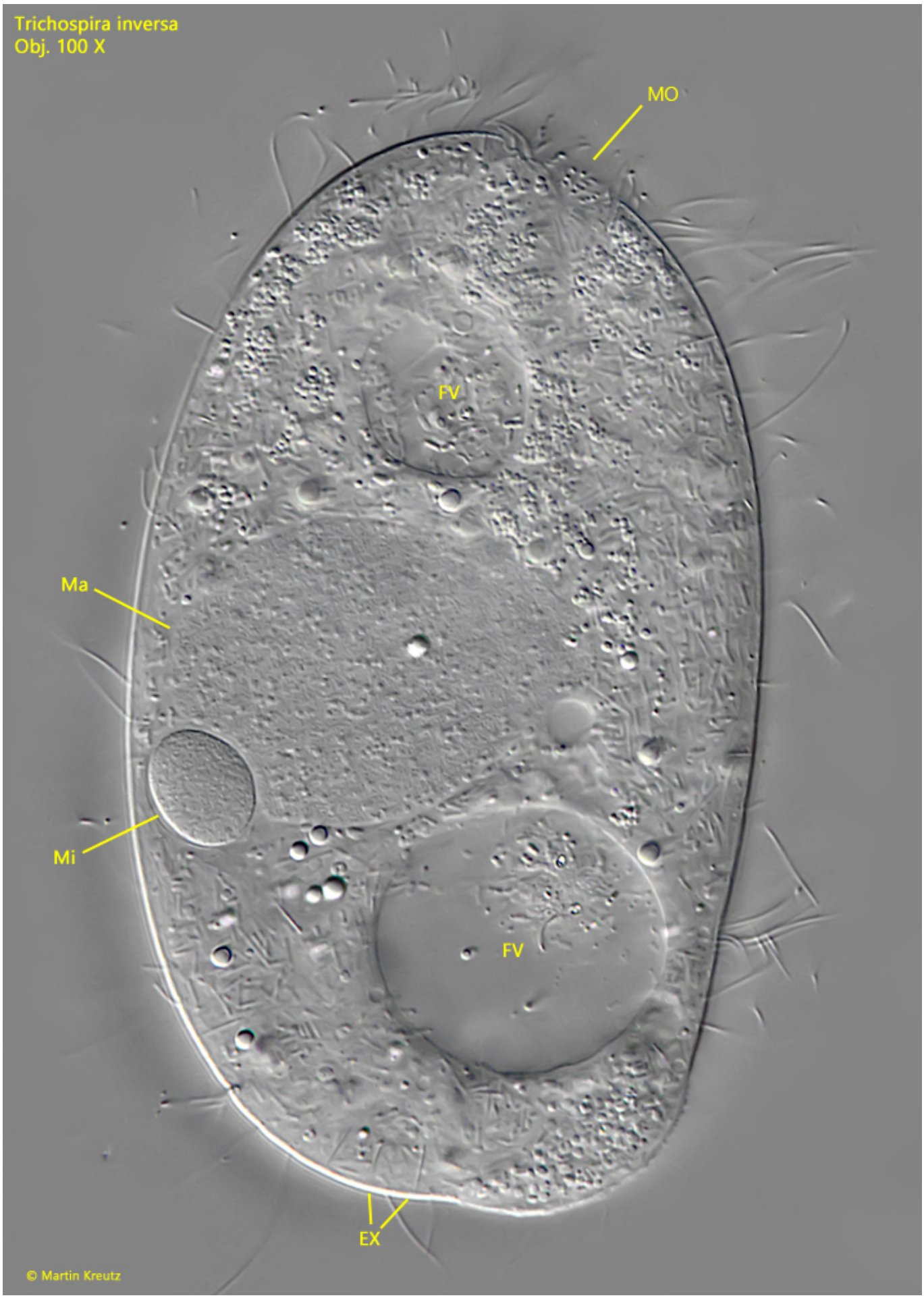

Trichospira inversa
Obj. 100 X
MO
FV
Ma
Mi
FV
EX
© Martin Kreutz

Fig. 6: *Trichospira inversa*. A squashed specimen with focal plane on the macronucleus (Ma) and the large micronucleus (Mi). FV = food vacuoles, MO = mouth opening. Obj. 100 X.



Fig. 7 a-b: *Trichospira inversa*. Focal plane on the extrusomes (EX) beneath the pellicle and on the transverse running spiral row of cilia (SRC) near posterior end. MO = mouth opening. Obj. 100 X.

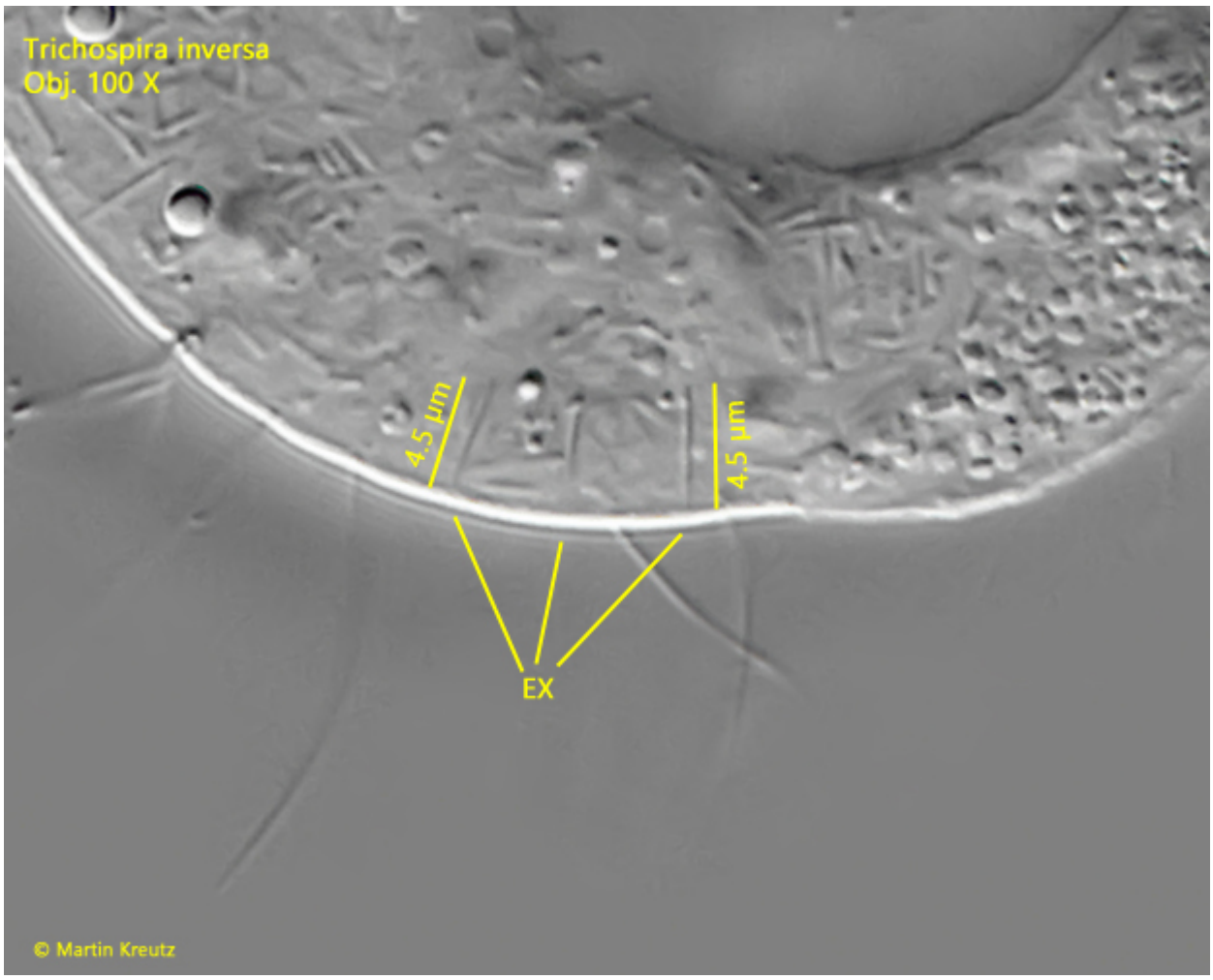


Fig. 8: *Trichospira inversa*. The extrusomes (EX) beneath the pellicle are thin, straight rods with a length of 4.5 µm. Obj. 100 X.