Phialina pupula

(Müller, 1773) Foissner, 1983

Most likely ID: n.a.

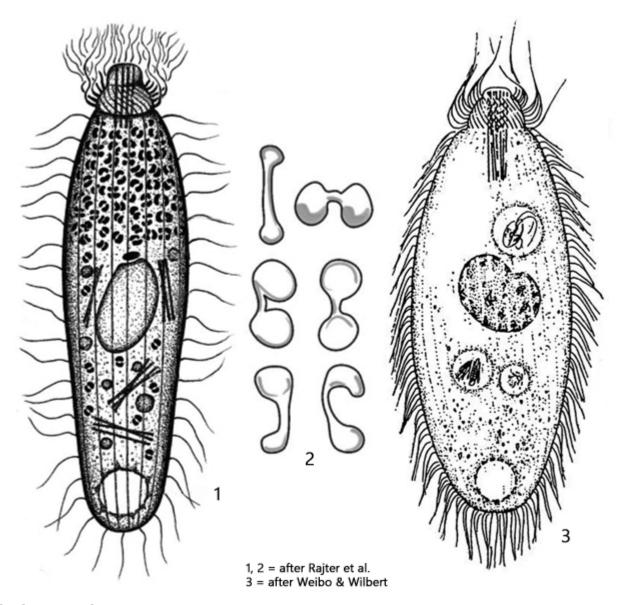
Synonym: n.a.

Sampling location: Simmelried, Pond behind parking space St. Ulrich (Austria)

Phylogenetic tree: Phialina pupula

Diagnosis:

- body fusiform or elliptical, contractile
- length 60-130 μm, width 20-50 μm
- head barrel-shaped, without neck, about 8.5 µm long
- head kineties run counterclockwise
- cytoplasm filled with dumbbell-shaped inclusions
- macronucleus elliptical with adjacent micronucleus
- extrusomes 10 µm long
- 15 longitudinal rows of cilia
- contractile vacuole subterminal



Phialina pupula

I regularly find *Phialina pupula* in the mud of <u>Simmelried</u>. Another site is a small pond behind a parking space in the village of St. Ulrich in Austria.

The genus *Phialina* was revived by Foissner (1983). This genus includes ciliates which have a clearly separated head without a neck. In addition, these species are only slightly contractile. The contractile species with a distinct neck are grouped in the genus *Lacrymaria*.

In *Phialina pupula* the head is about 8–10 μ m long. In my population it was mostly 10 μ m. Spirally kineties run counterclockwise on the head (s. fig. 6). A bundle of parallel extrusomes is arranged in the head, which according to my measurements are about 9 μ m long (s. fig. 5).

Phialina pupula is a fast swimming ciliate, which usually appears brown or even opaque black at low magnification. Even at low coverslip pressure, the specimens contract quickly and take on a rather oval shape. As the specimens are always crammed with granules, food vacuoles and inclusions, a closer examination is only possible in squashed specimens. Only then does the ellipsoid macronucleus with an attached micronucleus become visible (s. fig. 7). The most striking feature of *Phialina pupula* are the numerous dumbbell-shaped inclusions in the cytoplasm (s. figs. 8 and 9). They are highly refractive and light up in the DIC. Nothing is known about their nature and composition. However, they are a characteristic identifying feature of Phialina pupula.

The similar species Phialina macrostomata, Phialina vertens and Phialina vermicularis are all smaller than 85 µm in the elongated state and do not have the characteristic dumbbellshaped inclusions.

More images and information on *Phialina pupula*: <u>Jeffrey Silverman-iNaturalist-Phialina</u> <u>pupula</u>

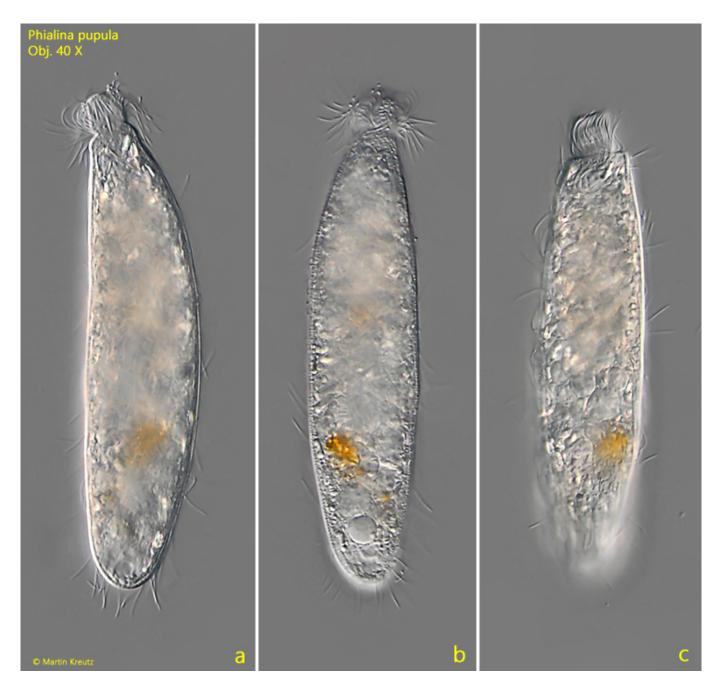


Fig. 1 a-c: Phialina pupula. L = 132 μm . A freely swimming specimen. Obj. 40 X.



Fig. 2 a-c: Phialina pupula. L = 152 μm . A second, freely swimming specimen. Obj. 40 X.

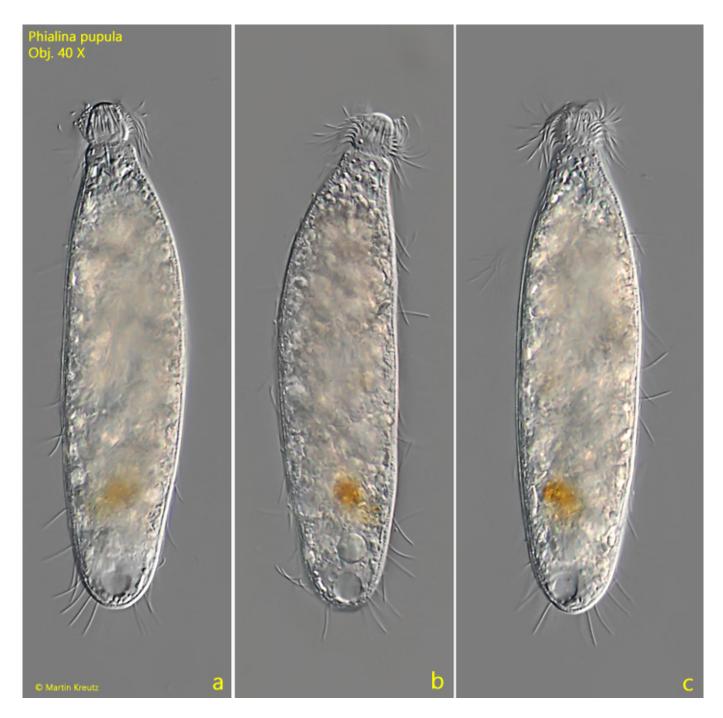


Fig. 3 a-c: Phialina pupula. L = 124 μm . A third, freely swimming specimen. Obj. 40 X.

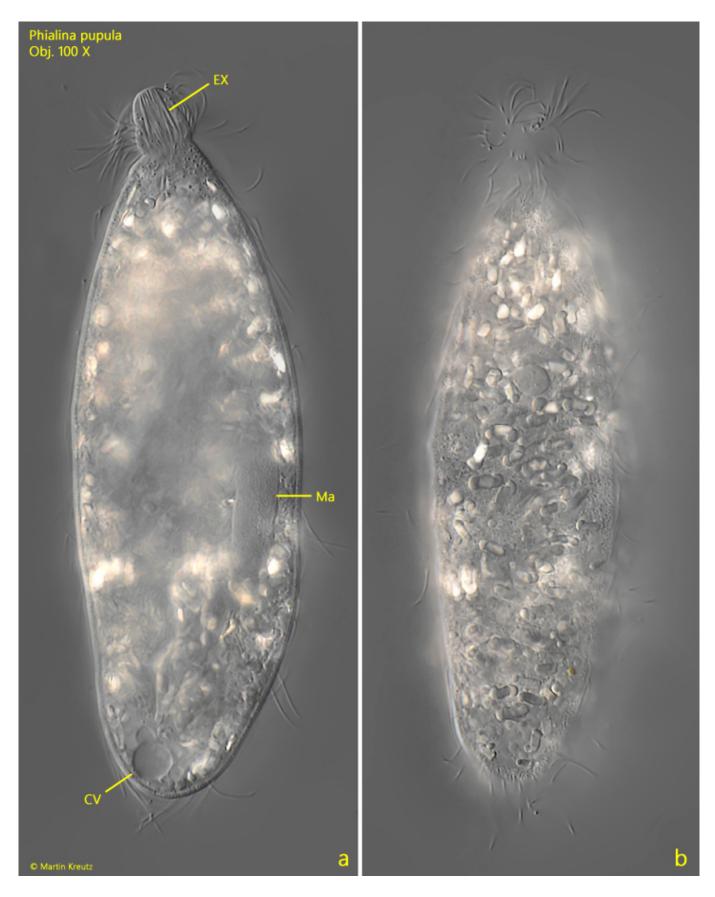


Fig. 4 a-b: Phialina pupula. $L=120~\mu m$. Two focal planes of a slightly squashed and contracted specimen. Obj. 100 X.

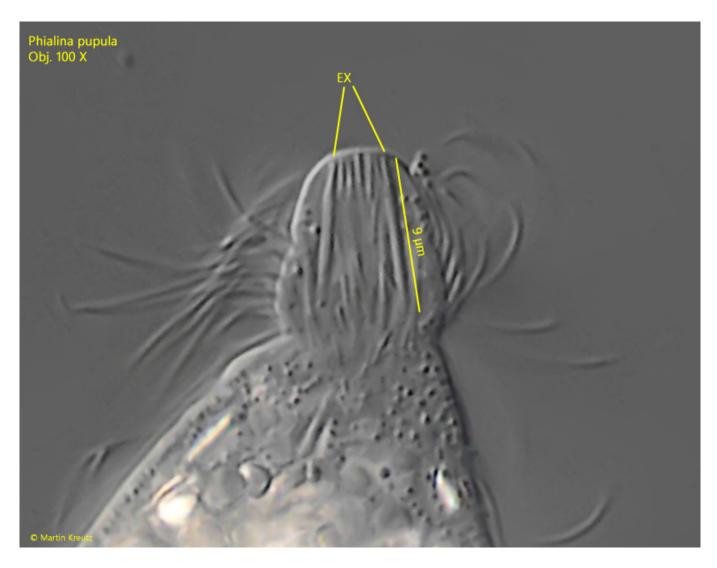


Fig. 5: Phialina pupula. The extrusomes (EX) arranged in the head are about 9 μm long. Obj. 100 X.

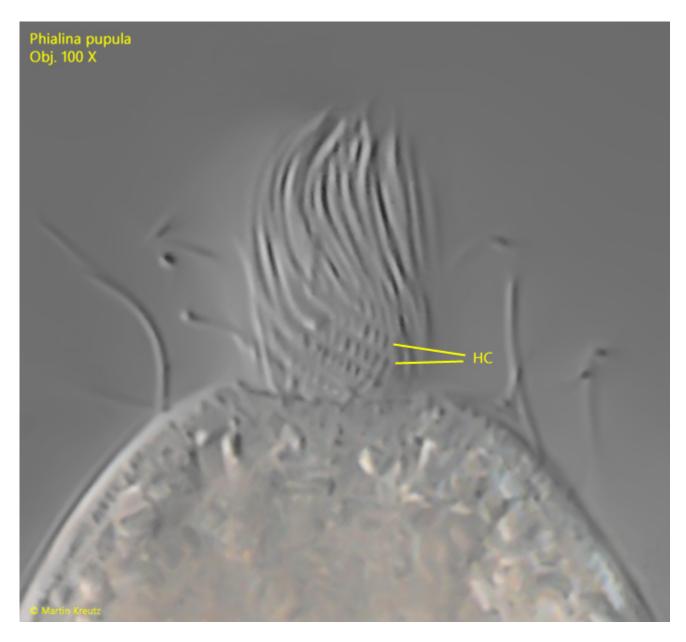


Fig. 6: Phialina pupula. Focal plane on the counterclockwise running head kineties (HC). Obj. 100 X.

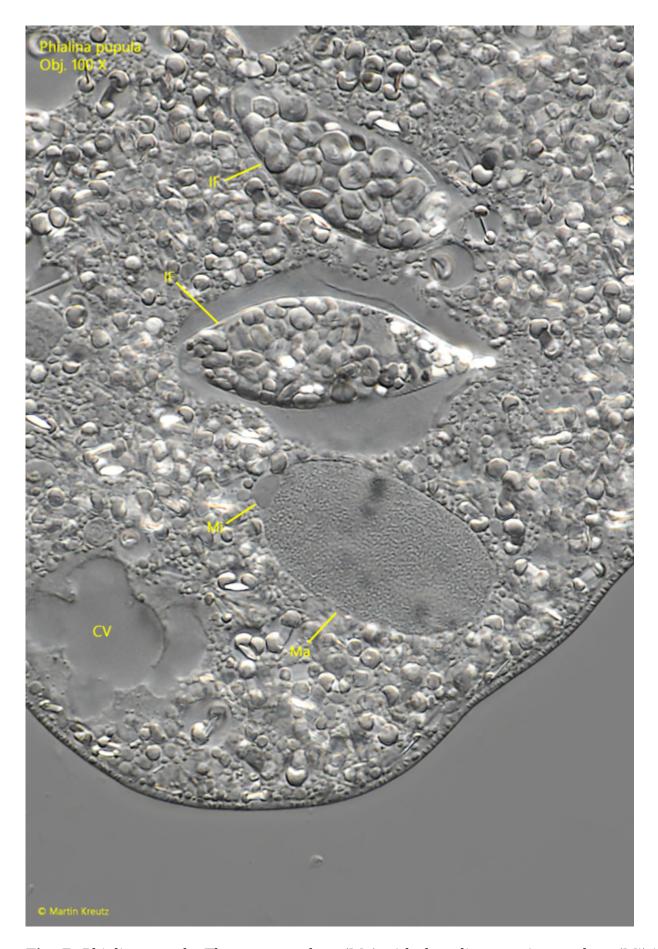


Fig. 7: Phialina pupula. The macronucleus (Ma) with the adjacent micronucleus (Mi) in a squashed specimen. In the food vacuoles two ingested flagellates (IF) are visible. CV =

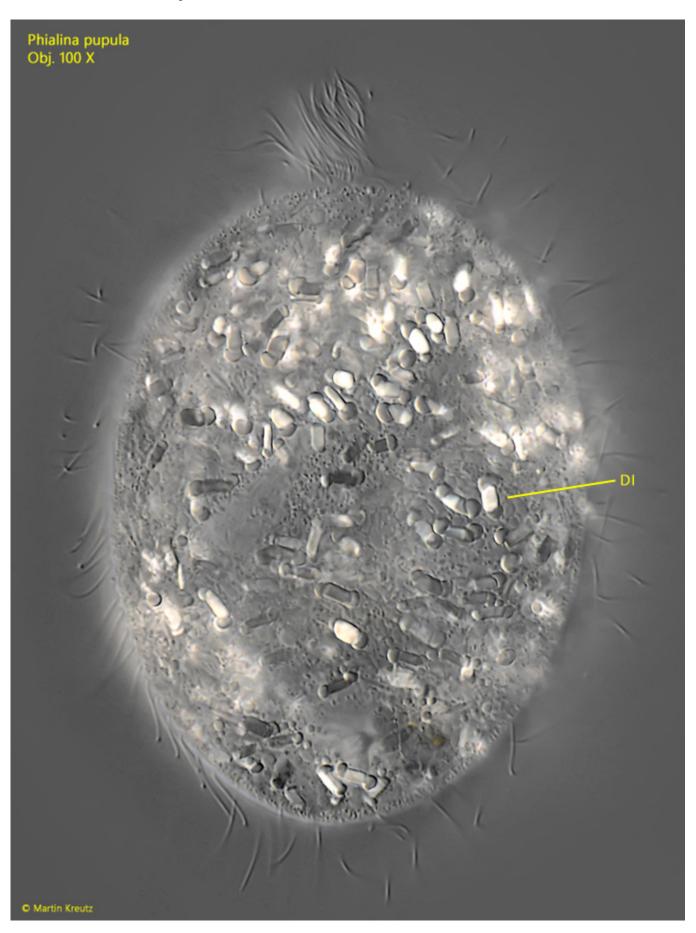


Fig. 8: Phialina pupula. Focal planes on the dumbbell-shaped inclusions (DI) scattered in the cytoplasm of a slightly squashed specimen. Obj. 100 X.

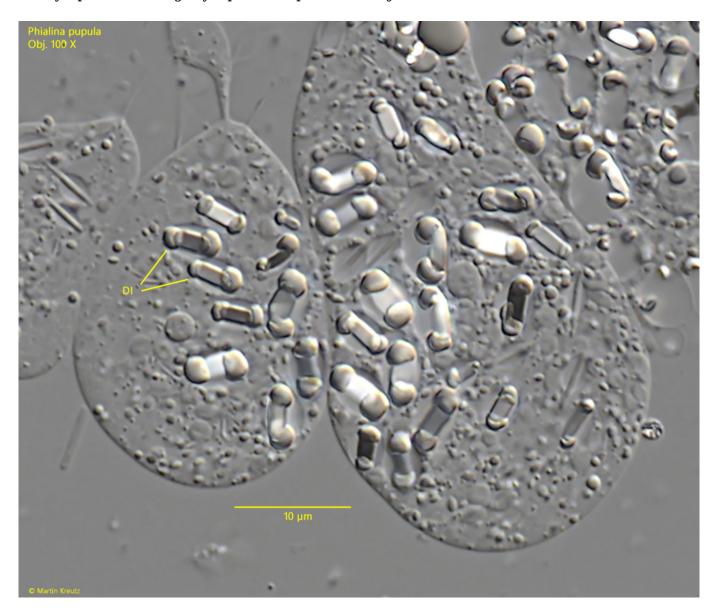


Fig. 9: Phialina pupula. The dumbbell-shaped inclusiones (DI) in a strongly squashed specimen. The inclusions are about 5 μm long. Obj. 100 X.