Holophrya ovum (Ehrenberg, 1831)

Most likely ID: n.a.

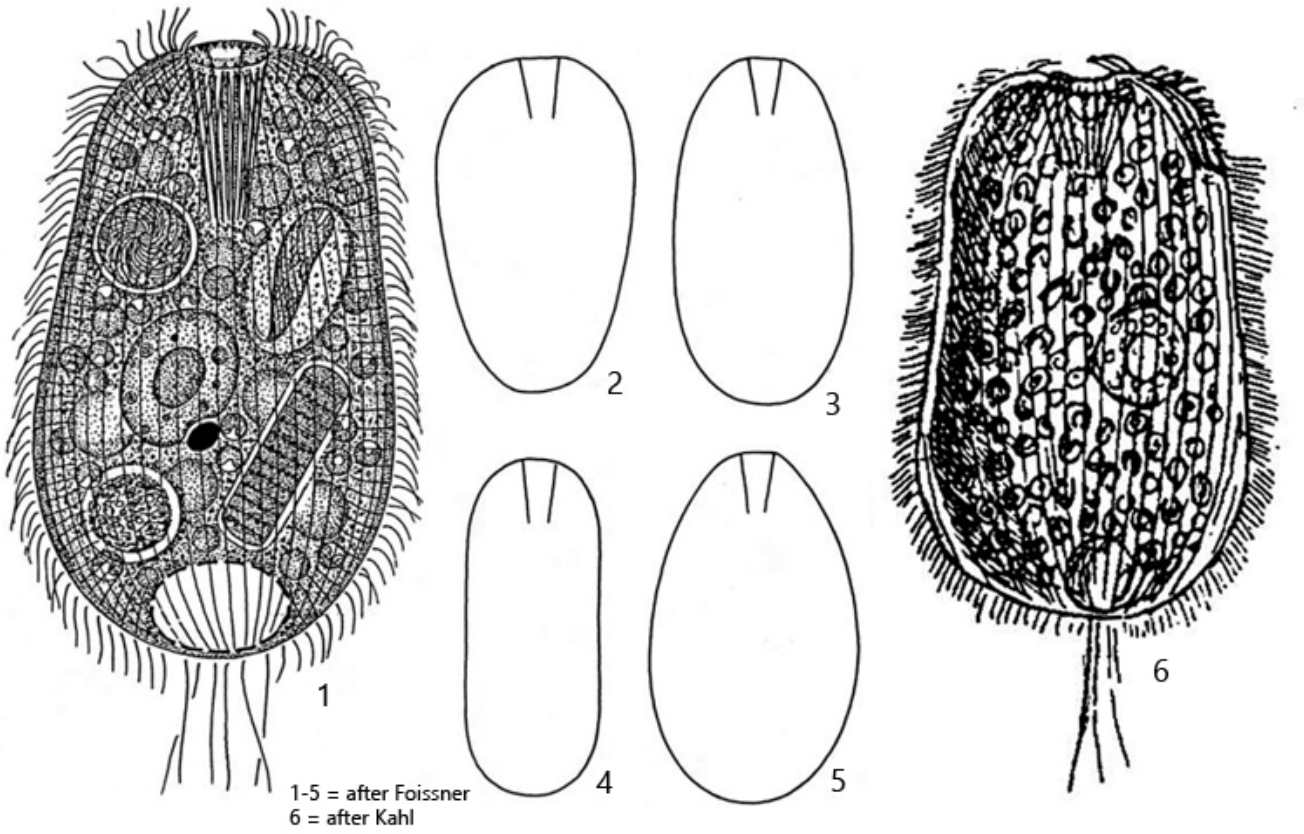
Synonym: *Prorodon ovum*, *Prorodon viridis*

Sampling location: Simmelried

Phylogenetic tree: *Holophrya ovum*

Diagnosis:

- body mostly broadly ellipsoid, slightly constricted in middle, anteriorly obliquely truncated
- green due to symbiotic algae
- length 100–160 µm
- mouth opening apical, oral basket with 24–34 clasp-shaped rods
- adoral brush with 3 rows
- 52–80 longitudinal rows of cilia
- macronucleus ellipsoid, one adjacent micronucleus
- extrusomes 8 µm long rods, slightly curved
- contractile vacuole terminal
- several caudal cilia



Holophrya ovum

So far I have only been able to find a single specimen of *Holophrya ovum*, which I was able to identify with certainty (s. fig. 1 a-c). In fact, there is a high risk of confusion with specimens of *Holophrya discolor*, which have phagocytized algae. Foissner et al. (1994) explicitly point out this problem. I find such green specimens of *Holophrya discolor* very frequently. I can often identify them by their small size (< 100 µm), but estimating the length is difficult, especially at low magnification and roundish specimens. It is therefore possible that I have overlooked other specimens of *Holophrya ovum* so far.

An important characteristic of *Holophrya ovum*, apart from the green coloration due to symbiotic algae, is the number of longitudinal rows of cilia and the shape of the extrusomes. The specimens must therefore be examined closely for reliable identification.

My specimen had a length of 155 µm and when slightly squashed I was able to count 23 longitudinal rows of cilia. For the actual number of longitudinal rows, you have to count the lateral rows and those on the opposite side of the body. In my specimen one can assume > 50 longitudinal rows. The decisive feature is the shape of the extrusomes. In *Holophrya ovum* these are slightly curved, 8 µm long rods. They therefore differ clearly from the extrusomes in *Holophrya discolor* (2–3 µm, spindle shaped) and *Holophrya teres* (13–18 µm, thin rods, hard to see). In my specimen I could clearly detect the 8 µm long, slightly curved extrusomes (s. figs. 4, 5 and 7).

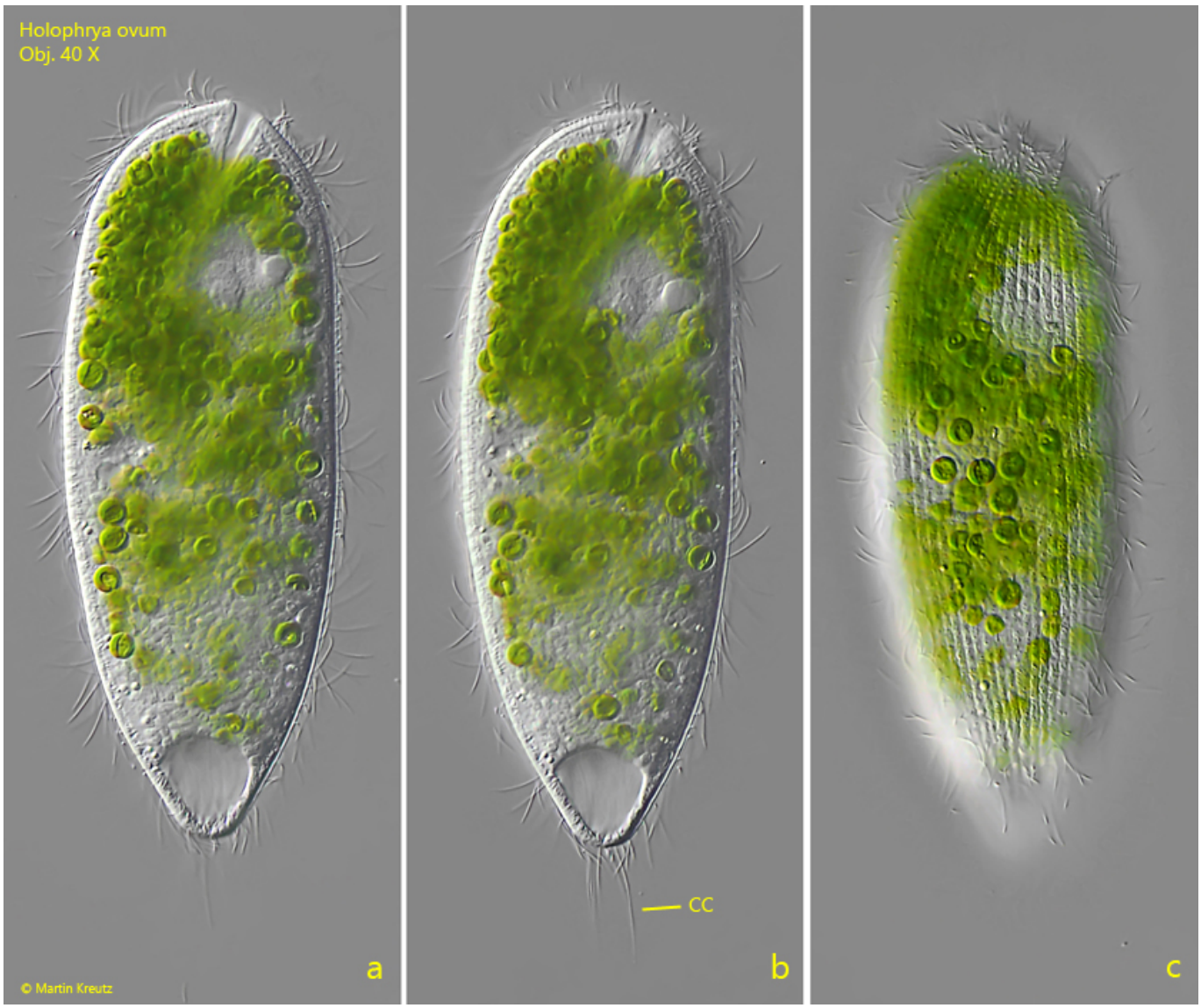


Fig. 1 a-c: *Holophrya ovum*. L = 155 µm. A freely swimming specimen. Obj. 40 X.


Holophrya ovum
Obj. 100 X
AB
1
10
20
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Fig. 2: *Holophrya ovum*. The squashed specimen as shown in fig. 1 a-c with focal plane on the adoral brush (AB) and the longitudinal rows of cilia. On this side of the body 23 rows are visible. Obj. 100 X.

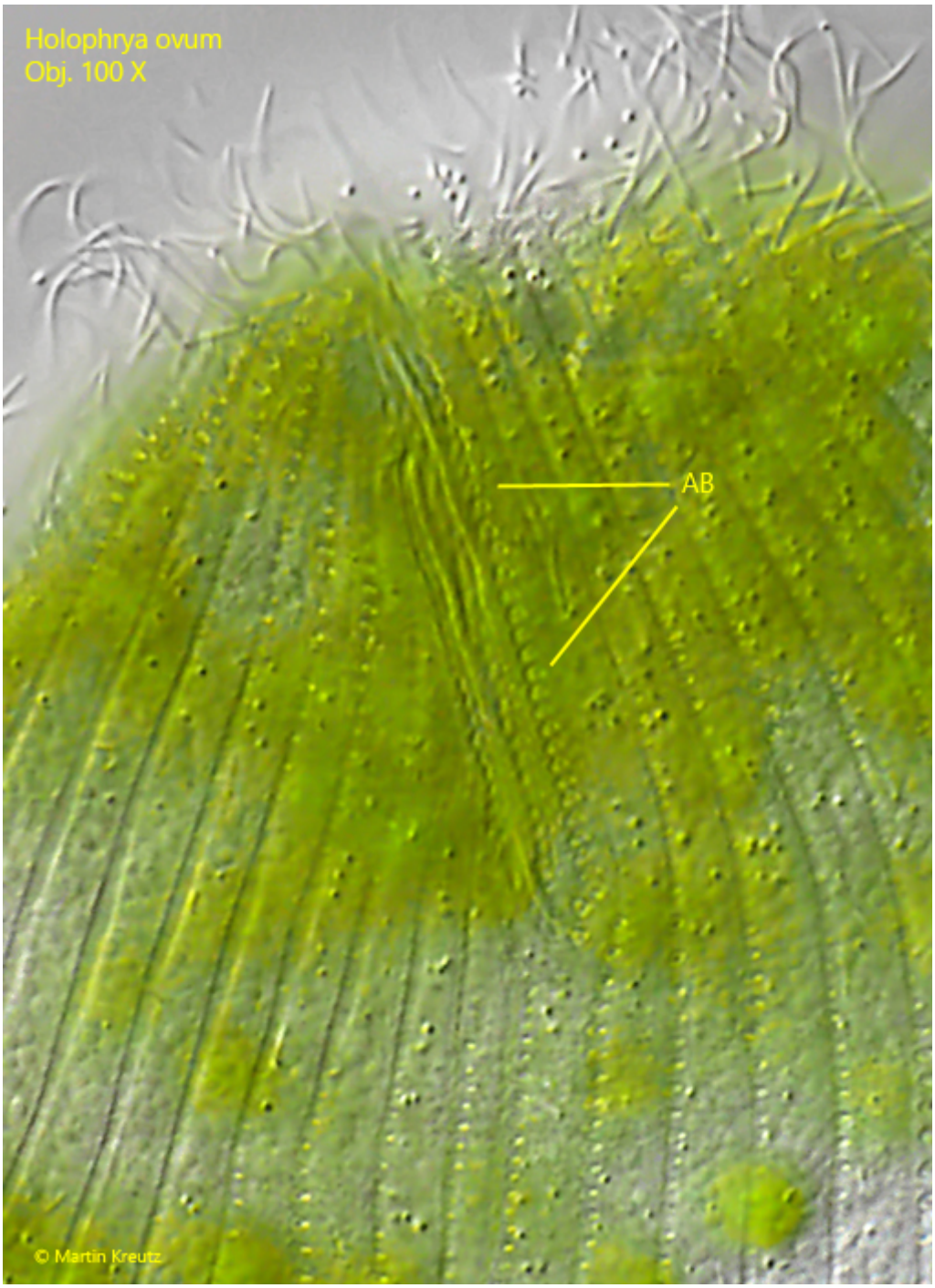

Fig. 3: *Holophrya ovum*. The adoral brush (AB) with three rows of short bristles. Obj. 100 X.

Fig. 4: *Holophrya ovum*. The mid-body of the slightly squashed specimen as shown in fig. 1 a-c. The cytoplasm is filled with symbiotic algae. Note the thin, rod-shaped extrusomes (EX). Ma = macronucleus, Mi = micronucleus. Obj. 100 X.

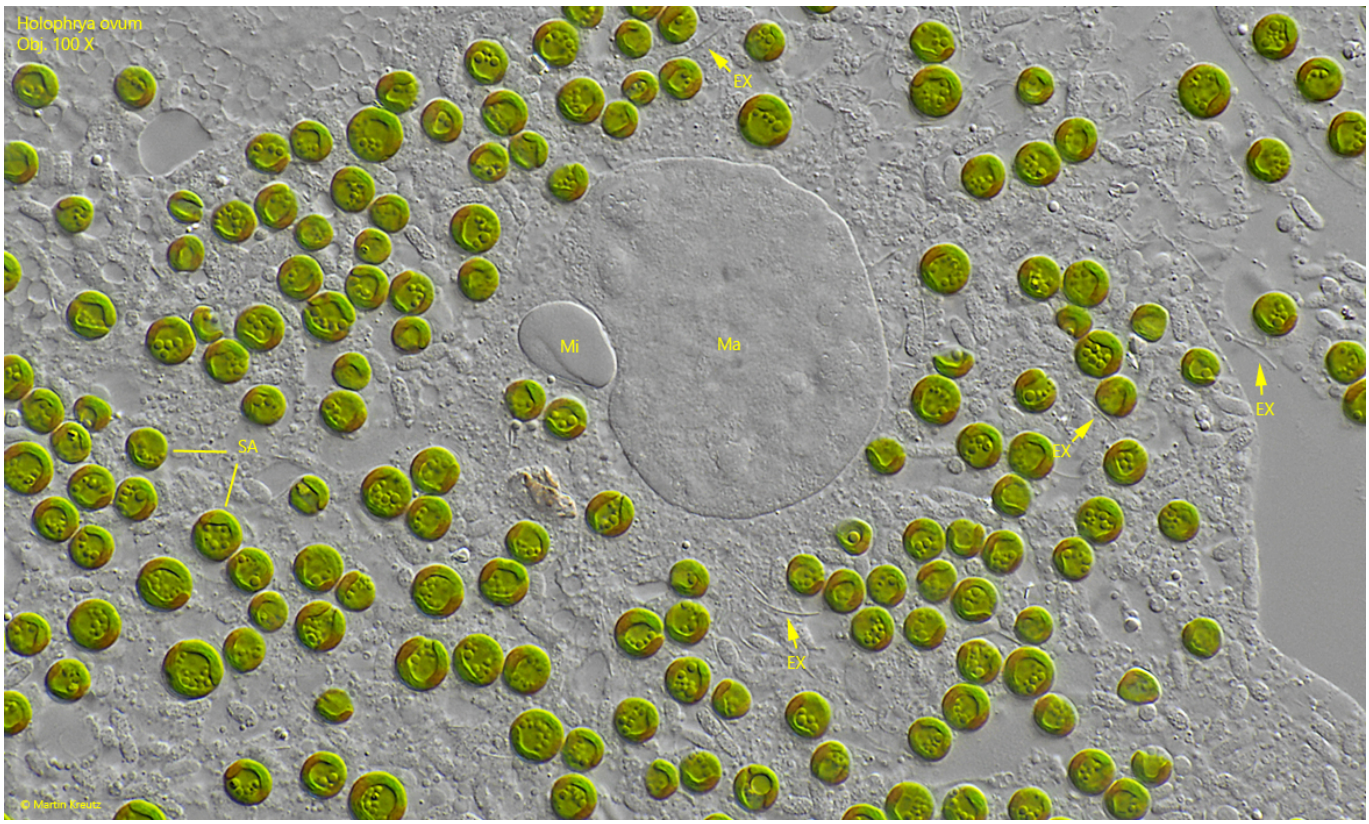

Fig. 5: *Holophrya ovum*. The strongly squashed specimen as shown in fig. 1 a-c. Note the slightly curved, rod-shape extrusomes (EX). Ma = macronucleus, Mi = micronucleus, SA = symbiotic algae. Obj. 100 X.

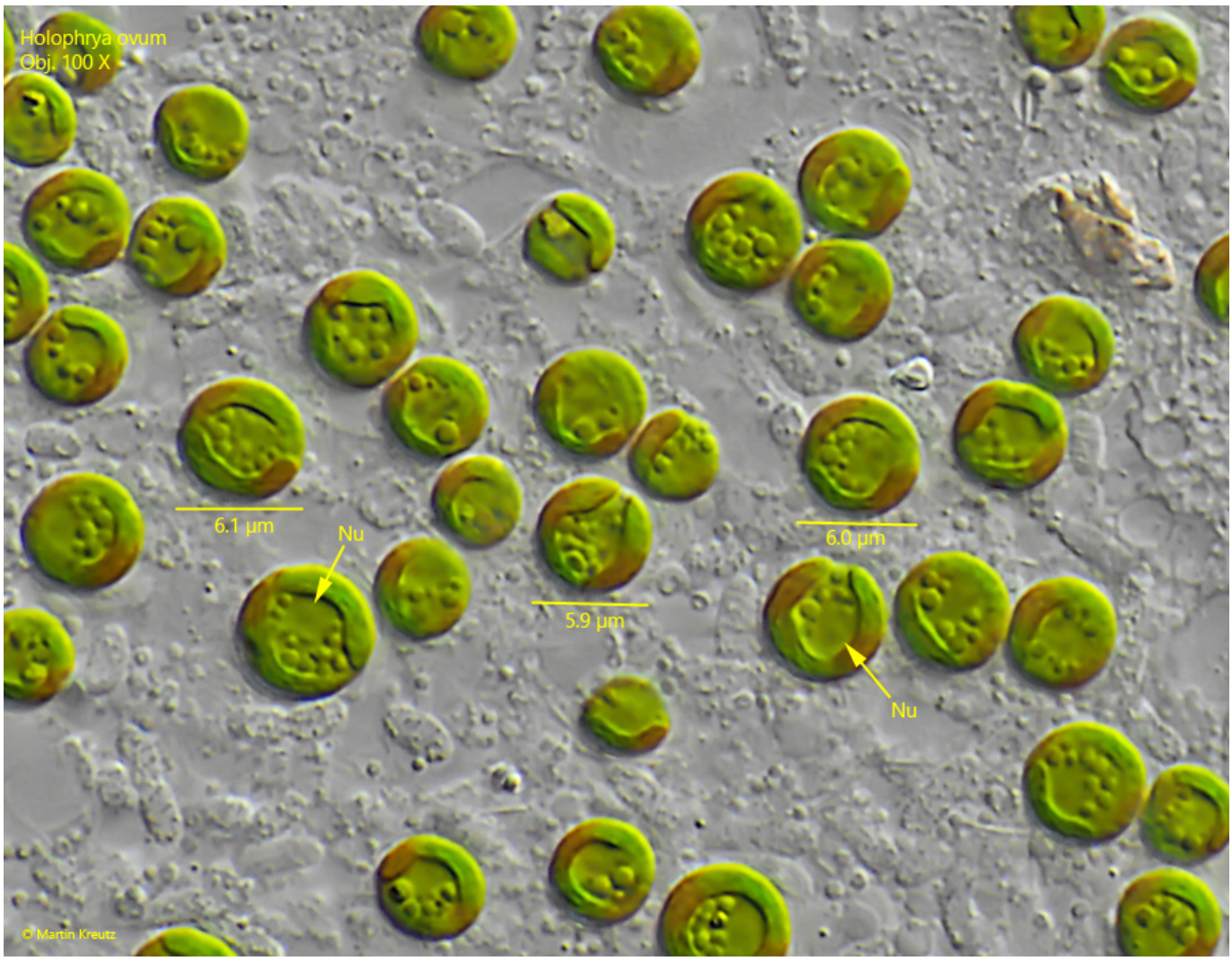

Fig. 6: *Holophrya ovum*. The symbiotic algae (*Chlorella faginea*) in detail. Each alga cell has a separate nucleus (Nu). The diameter of the cells is 5.0 – 6.1 µm. Obj. 100 X.

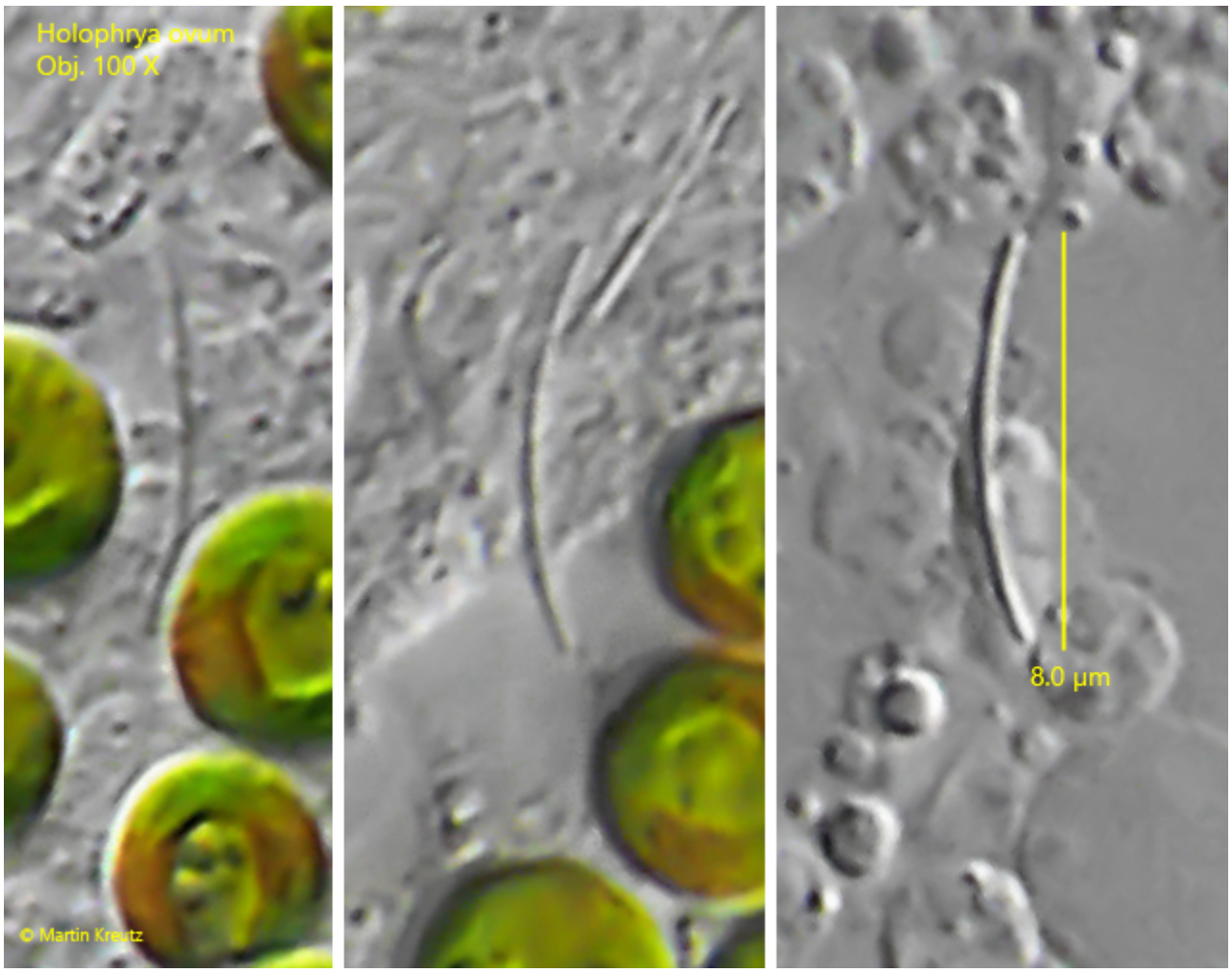

Fig. 7: *Holophrya ovum*. Three examples of the slightly curved extrusomes with a length of 7.8–8.0 µm. Obj. 100 X.