Platyophrya sphagni

(Penard, 1922) Foissner, 1993

Most likely ID: n.a.

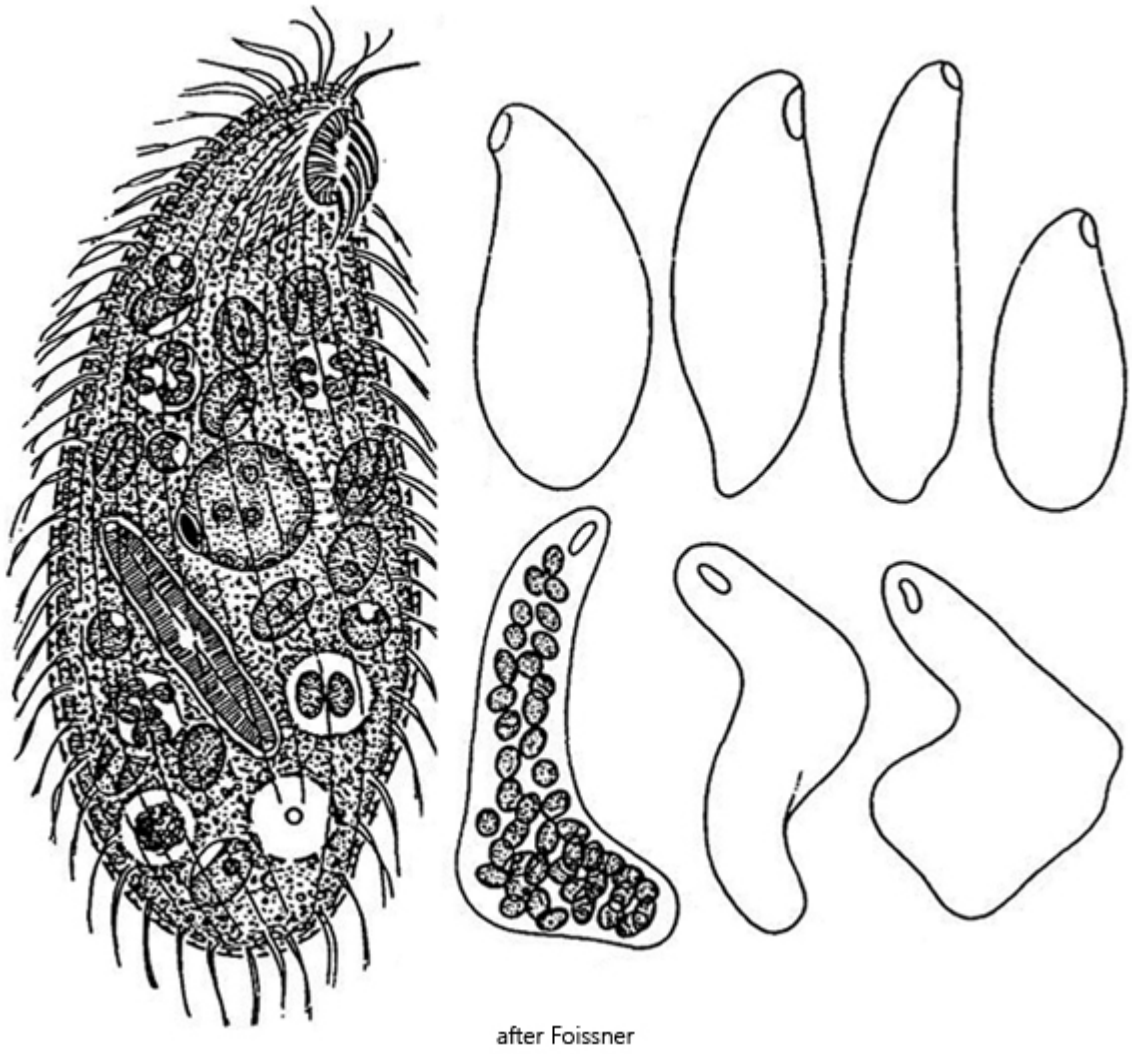
Synonyms: *Glaucoma sphagni*, *Platyophrya chlorelligera*, *Platyophrya viridis*

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

Phylogenetic tree: *Platyophrya sphagni*

Diagnosis:

- cells reniform or bursiform
- cells highly metabolic
- extended cell about 60 µm longitudinal
- minute oral apparatus subterminal
- C-shaped paroral membrane right, 5–7 adoral organelles left
- macronucleus spherical (9–13 µm)
- micronucleus lenticular
- cytoplasm green due to 30–60 symbiotic algae
- symbiotic algae ellipsoid, 5–6 µm long
- contractile vacuole distinctly subterminal
- cortex furrowed
- 20–26 somatic kineties
- rows of mucocysts between kineties



Platyophrya sphagni

I find *Platyophrya sphagni* frequently and regularly in the Simmelried, but also in other bodies of water that are actually not typical because they contain no *Sphagnum moss* and are only slightly acidic, such as the pond at St. Ulrich. The specimens are found almost exclusively in detritus, especially when it has a gelatinous consistency and is teeming with bacteria (s. fig. 1).

Platyophrya sphagni was first described as *Glaucoma sphagni* by Penard in 1922. In 1993, Foissner transferred the species to the genus *Platyophrya*. A detailed redescription of *Platyophrya sphagni* was published in 1996 by Foissner & Kreutz.

The body of *Platyophrya sphagni* is exceptionally capable of metaboly. When the specimens burrow through detritus flakes, they show an almost amoeboid motility. Only free-swimming specimens have an elongated, constant shape. They then usually assume a slender, pouch-like shape, with a tapered anterior end and a

rounded posterior end (s. fig. 4 a-c).

The mouth opening lies slightly subapically and is difficult to examine in motile specimens. Details can only be discerned in strongly squashed specimens that can no longer perform metaboly. A C-shaped paroral membrane is situated on the right side of the mouth opening, while an adoral zone of membranelles is situated on the left. This usually consists of 6 separate adoral organelles. This arrangement is most clearly visible when focusing on the basal bodies of the cilia (s. fig. 7 a-b).

The contractile vacuole lies distinctly subterminally (s. fig. 5 a). The round macronucleus is usually found in the middle of the body. Attached to it is a lens-shaped micronucleus (s. figs. 9 and 10). There are about 20 somatic kineties, which run in a slightly spiral pattern counterclockwise (s. fig. 5 b). Between the kineties are bands of mucocysts, which are 1–2 µm long (s. fig. 8).

Ellipsoid-shaped zoochlorellae, which are 5–6 µm long, are always found in the cytoplasm. All cells have a pyrenoid and a nucleus (s. fig. 11). In addition, the cells usually contain an oil-like droplet. A chloroplast is present, lying against the cell wall in a plate-like shape.

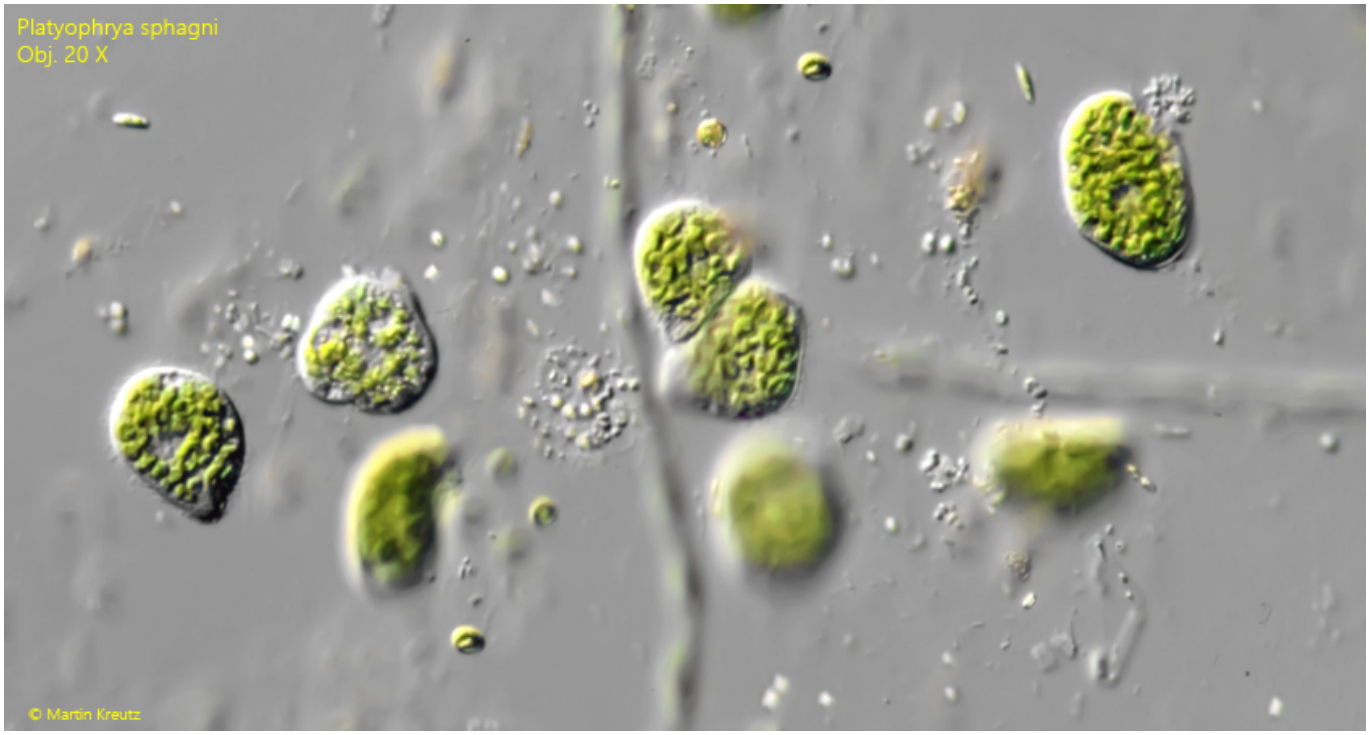


Fig. 1: *Platyophrya sphagni*. Some specimens are rummaging through a detritus flake. Obj. 20 X.

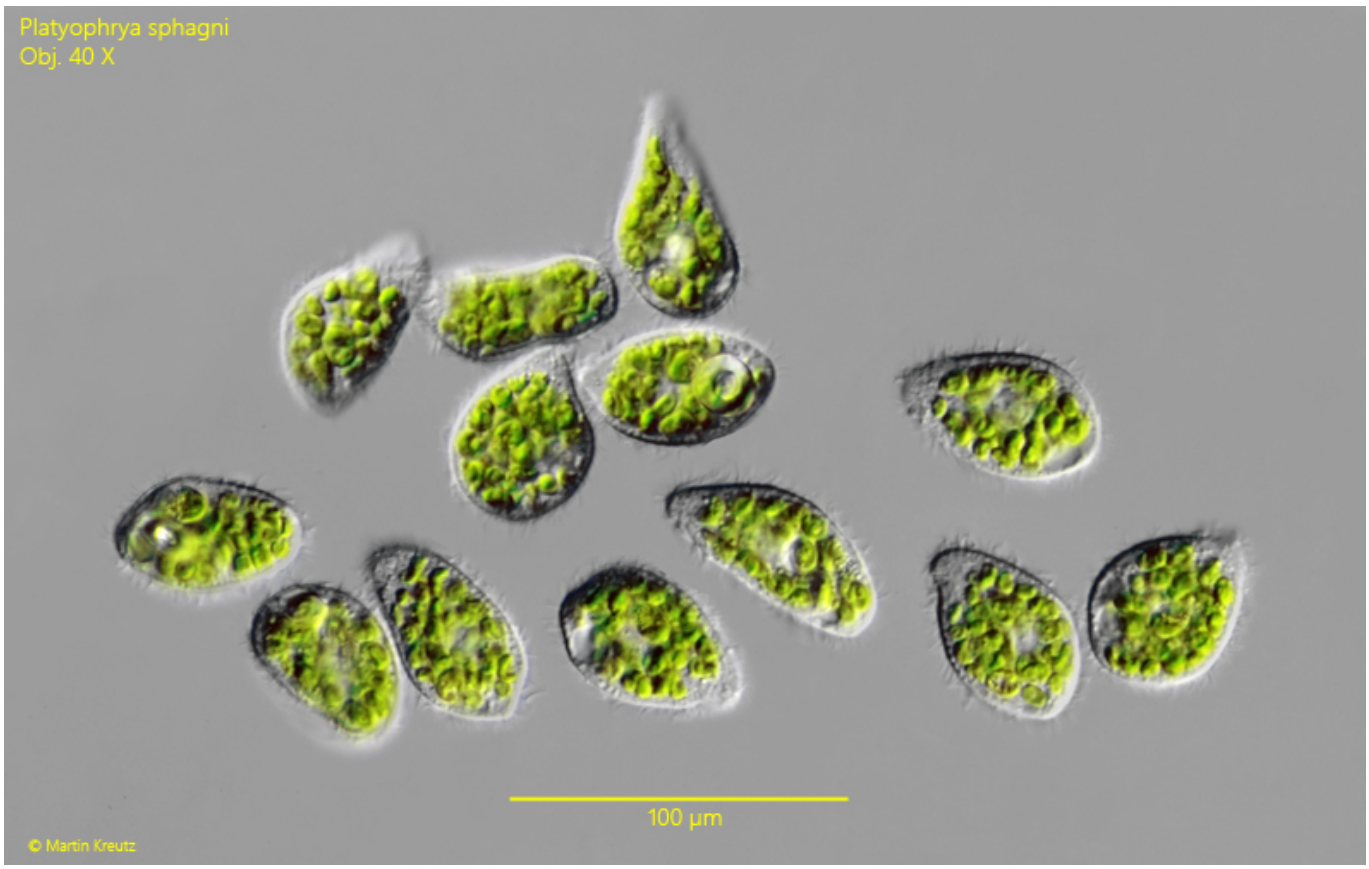


Fig. 2: *Platyophrya sphagni*. L = 52–71 µm. Some specimens collected from the light-exposed side of the sample vessel under the coverslip. Obj. 40 X.

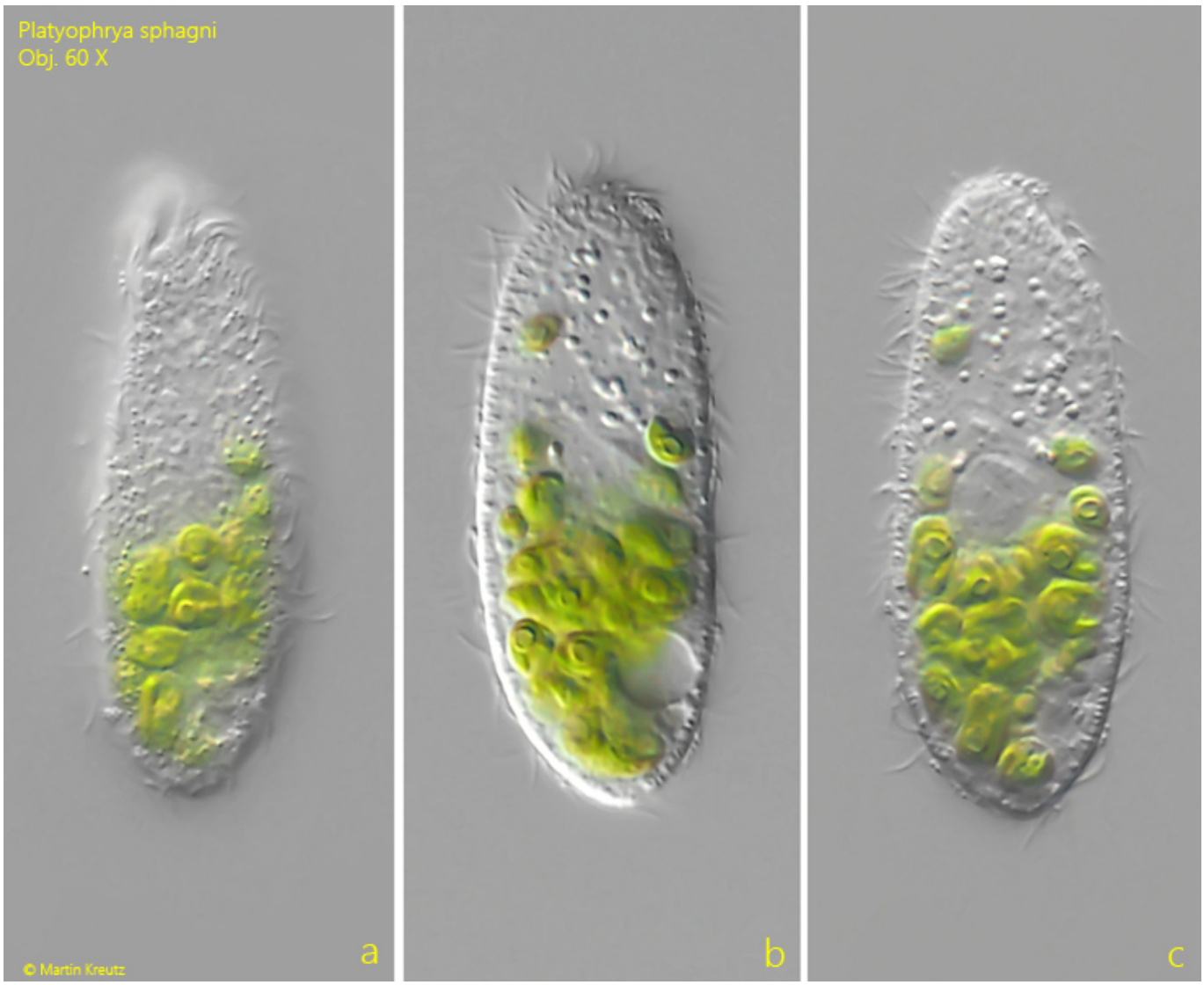


Fig. 3 a-c: *Platyophrya sphagni*. L = 52 µm. A freely swimming specimen. Obj. 60 X.

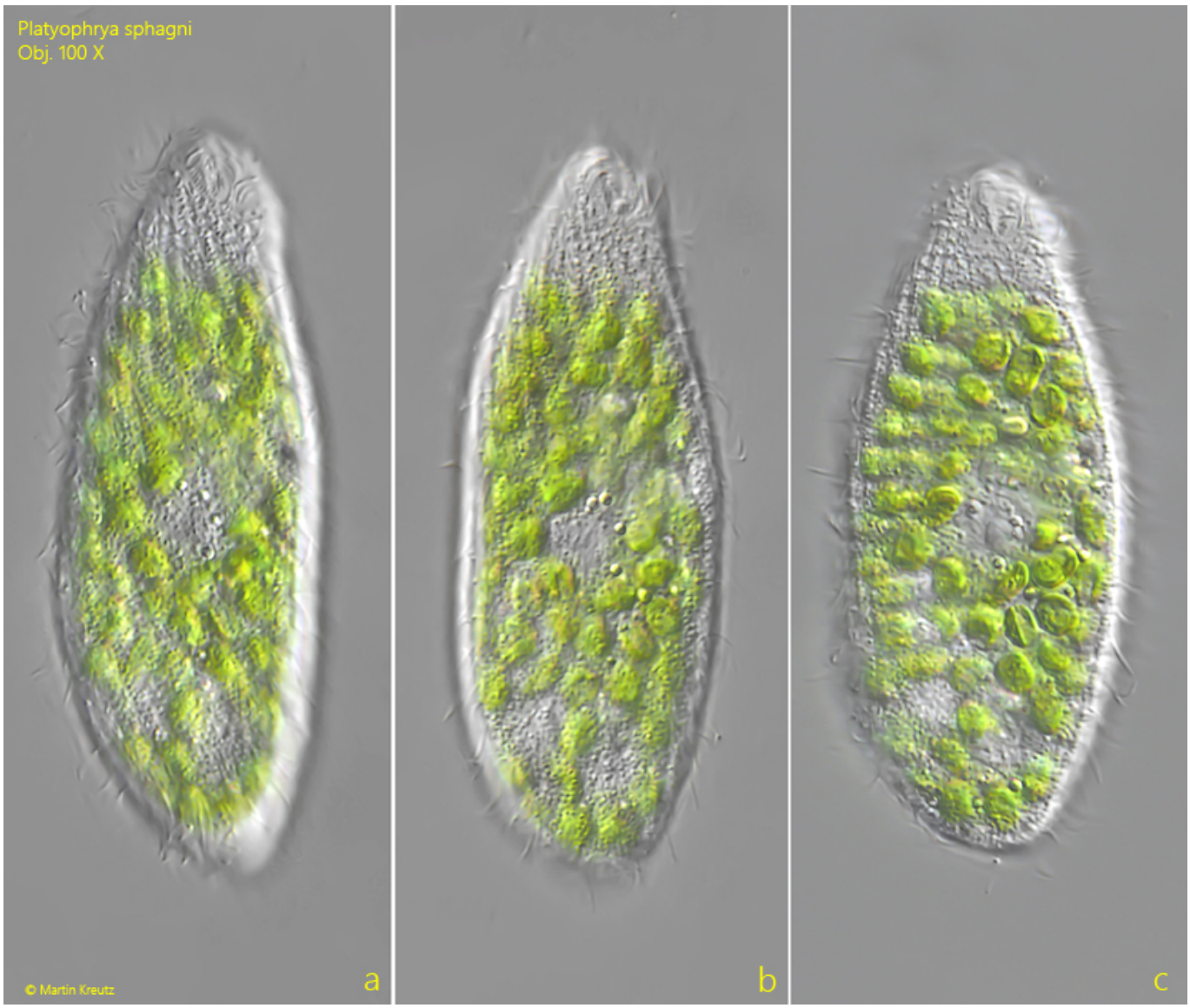


Fig. 4 a-c: *Platyophrya sphagni*. L = 72 µm. A second freely swimming specimen. Obj. 100 X.



Fig. 5 a-b: *Platyophrya sphagni*. L = 64 µm. A slightly squashed specimen with focal plane on the spherical macronucleus (Ma) and on the somatic kineties (b). CV = subterminal contractile vacuole. Obj. 100 X.

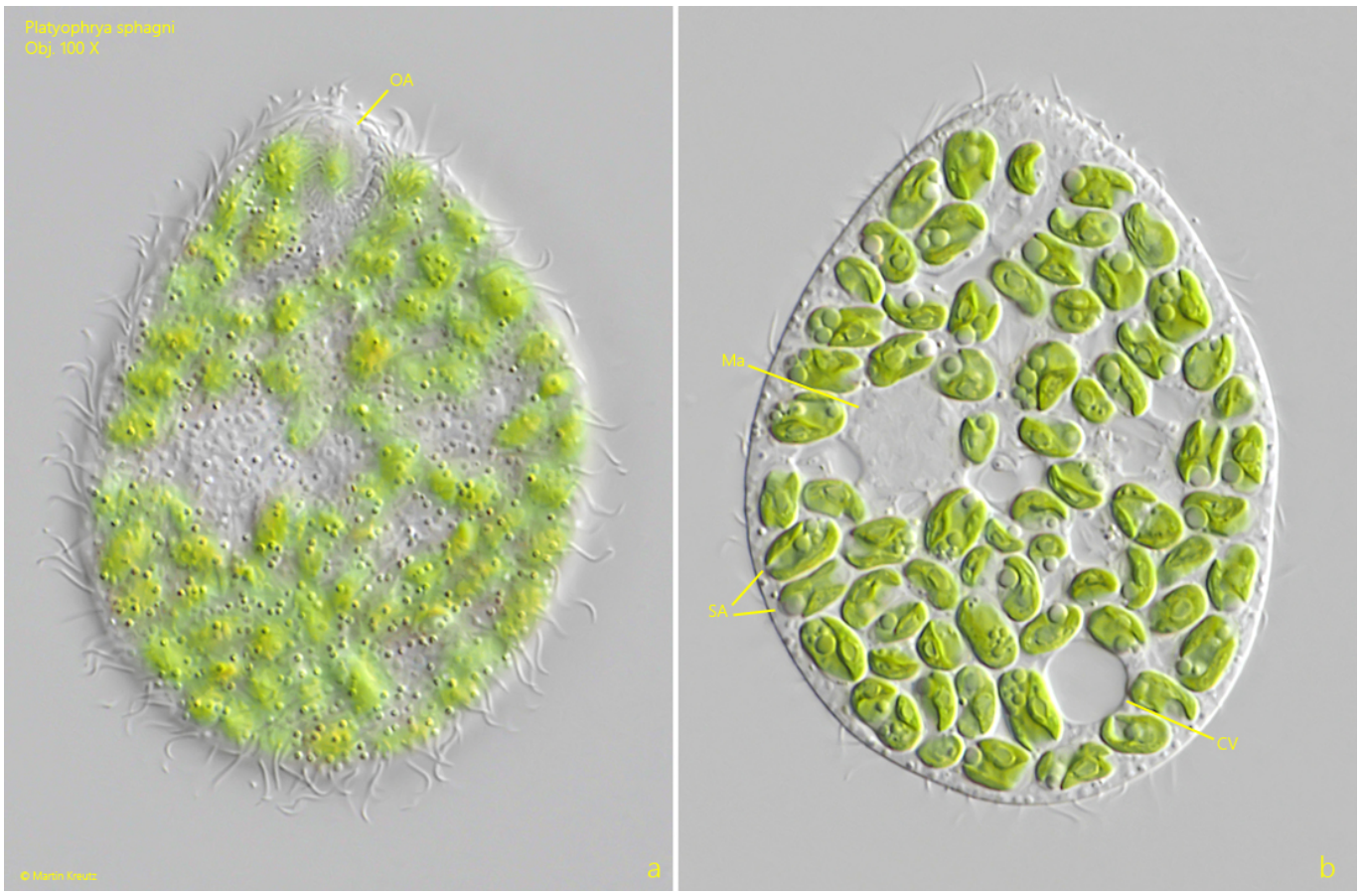


Fig. 6 a-b: *Platyophrya sphagni*. A squashed specimen with focal plane on the oral apparatus (OA) and the macronucleus (Ma). SA = symbiotic algae. Obj. 100 X.

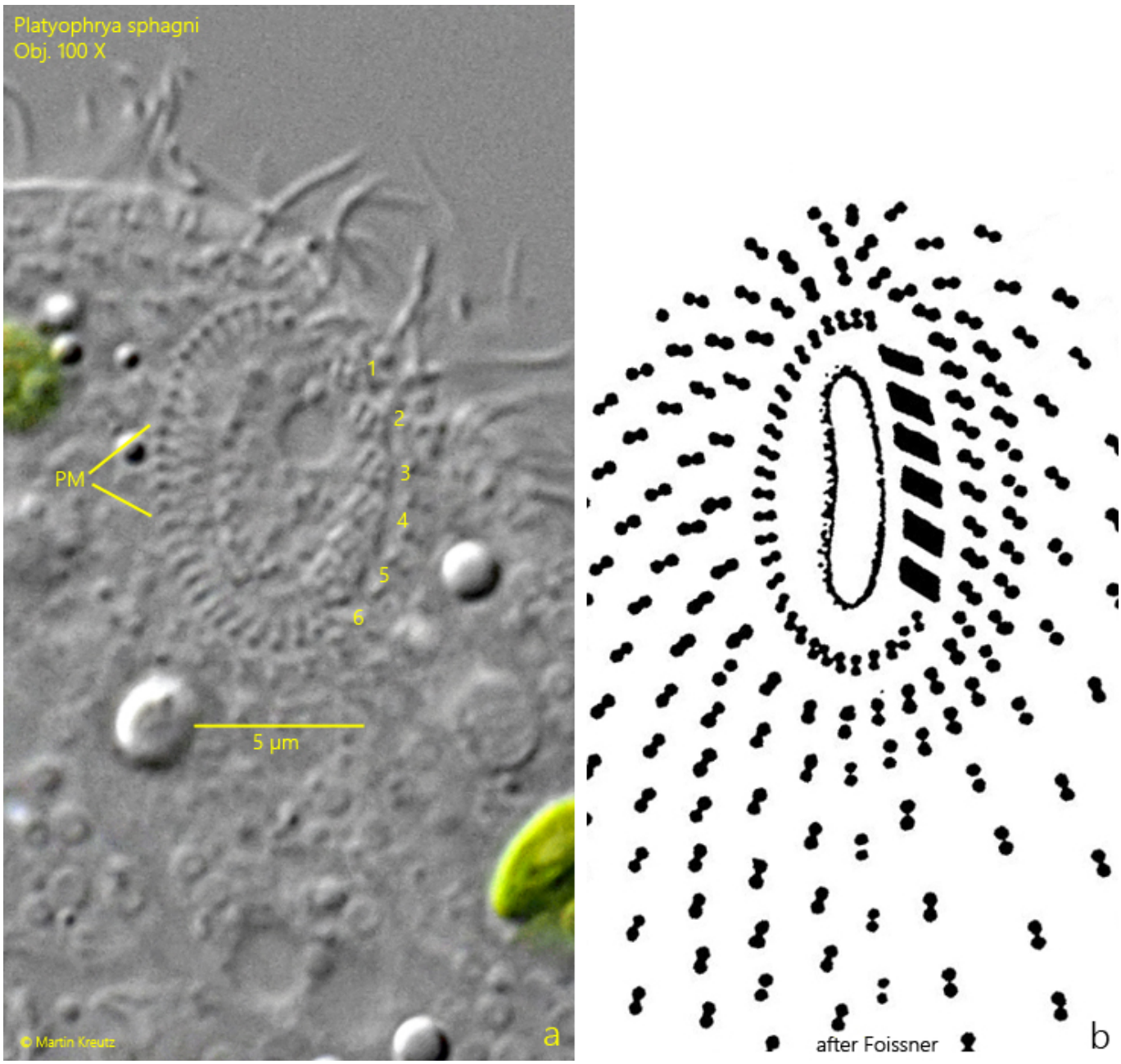


Fig. 7 a-b: *Platyophrya sphagni*. The oral apparatus in a strongly squashed specimen (a) compared to a schematic drawing (b). The focal plane is on the basal bodies. On the right side the C-shaped paroral membrane is visible (PM) and on the left side the 6 adoral organelles. Obj. 100 X.

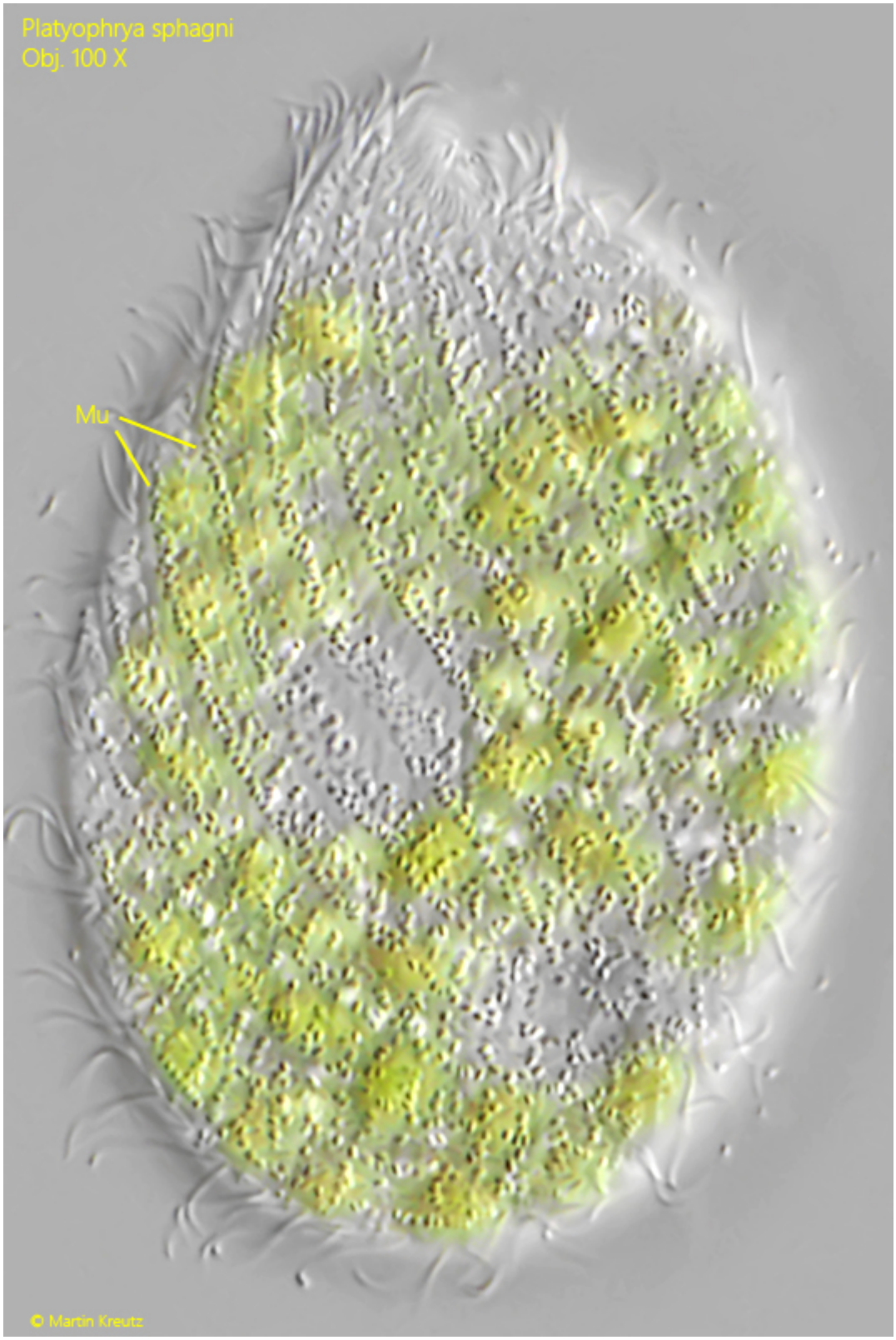


Fig. 8: *Platyophrya sphagni*. The rows of mucocysts (Mu) in a slightly squashed specimen. Obj. 100 X.



Fig. 9: *Platyophrya sphagni*. The macronucleus (Ma) with adjacent micronucleus (Mi) in a squashed specimen. CV = contractile vacuole. Obj. 100 X.

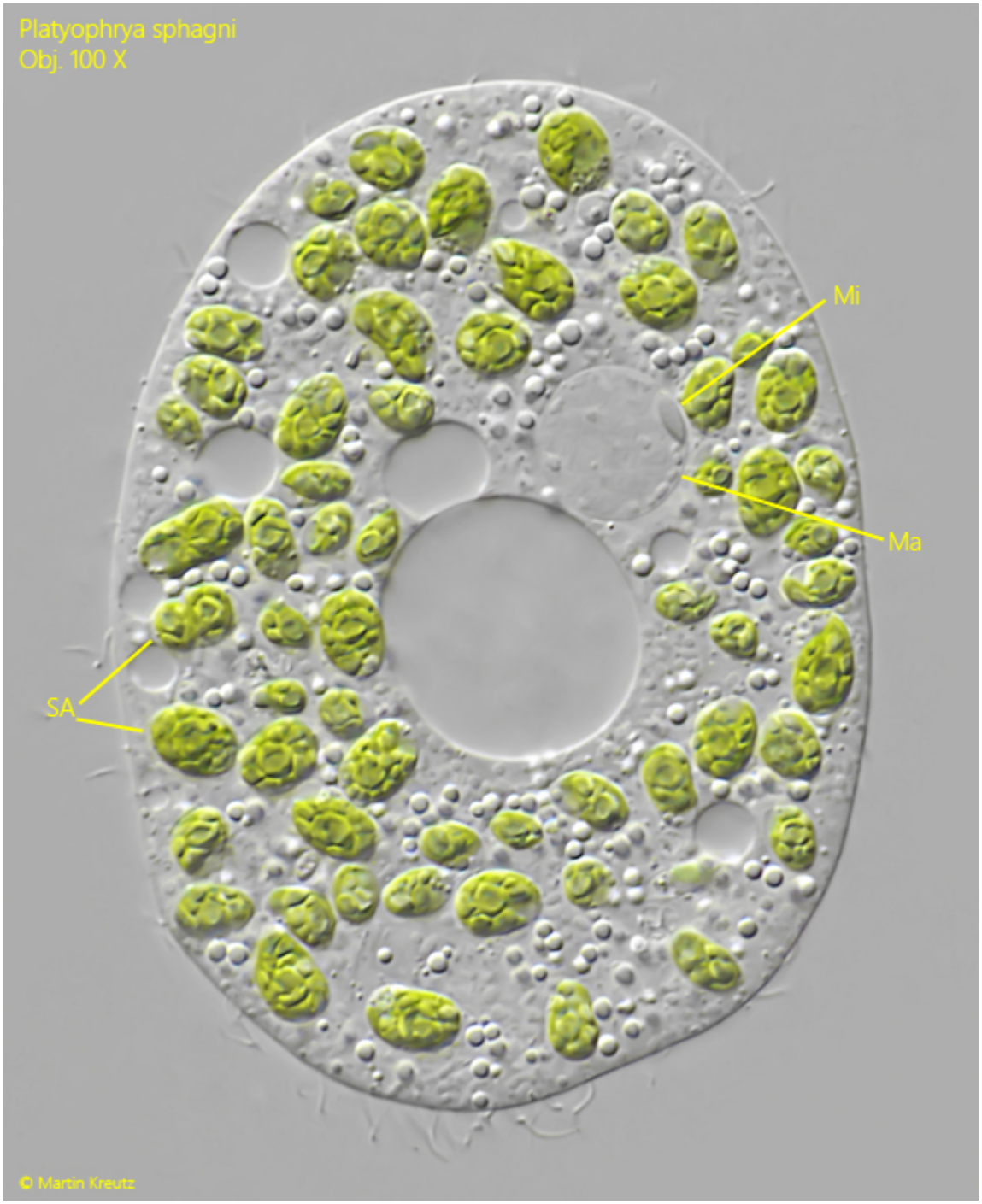


Fig. 10: *Platyophrya sphagni*. The macronucleus (Ma) and micronucleus (Mi) in a second squashed specimen. SA = symbiotic algae. Obj. 100 X.

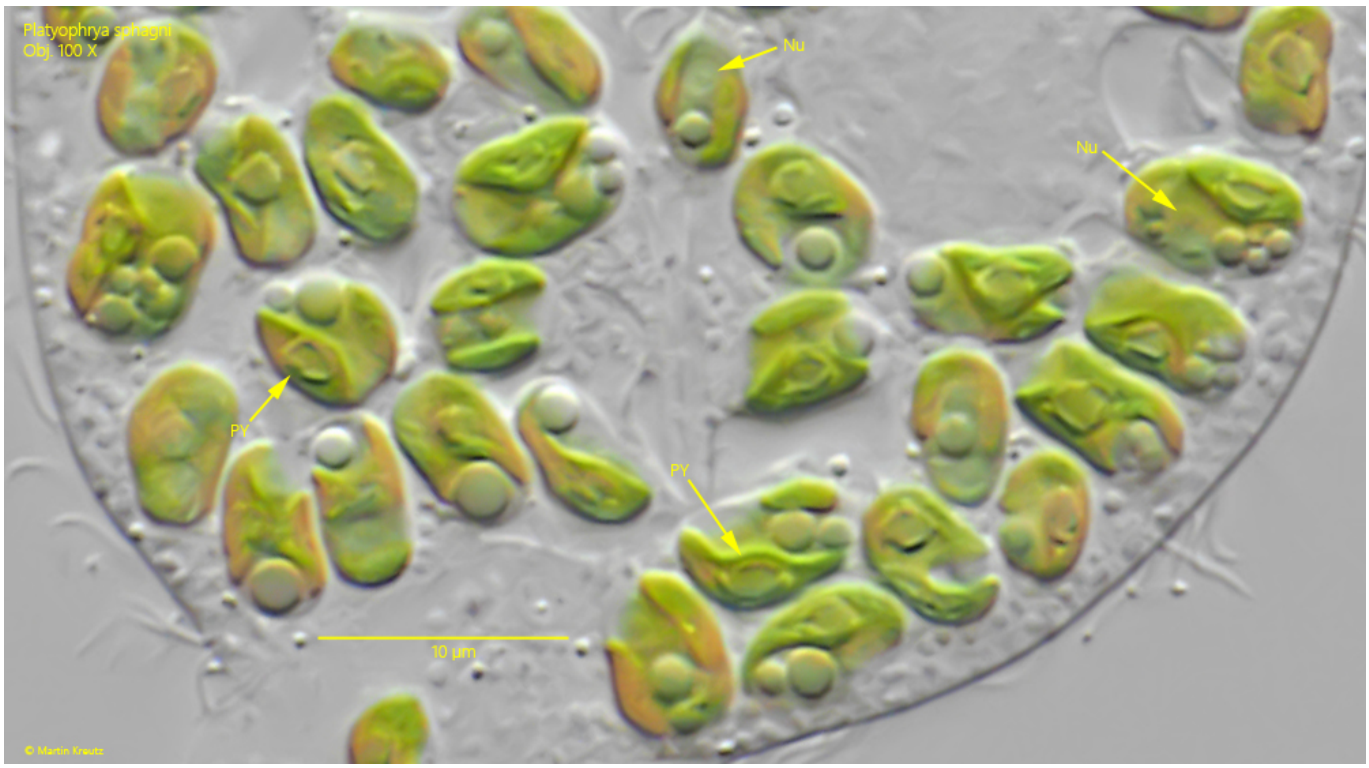


Fig. 11: *Platyophrya sphagni*. The ellipsoid symbiotic algae with a length of 5–6 µm in detail. Each alga cell contain a nucleus (Nu) and a pyrenoid (PY). Obj. 100 X.