Aphanothece stagnina

(Sprengel) A.Braun, 1863

Most likely ID: n.a.

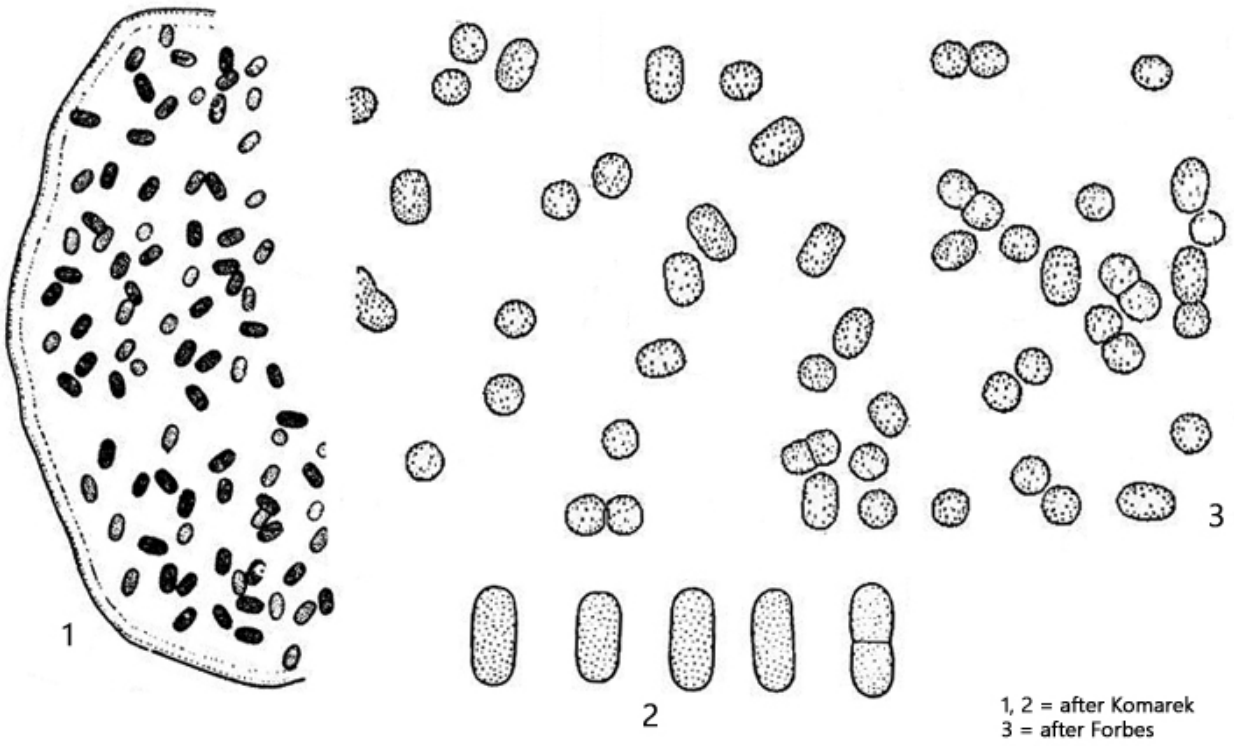
Synonym: *Coccochloris stagnina*

Sampling location: Simmelried, Sima Moor (Austria)

Phylogenetic tree: *Aphanothece stagnina*

Diagnosis:

- colonies in a common mucilaginous sheath
- young colonies spherical, with distinct margin
- older colonies irregular, up to 4 cm in diameter
- cells oval or cylindrical, rounded ends
- length (of cells) 3.8–9 µm, width 3–5 µm
- no individual mucilaginous envelope of cells
- color bluish-green
- cells loosely dispersed in colony



Aphanothece stagnina

The cyanobacterium *Aphanothece stagnina* forms round or irregularly shaped gelatinous colonies, which usually lie on the bottom mud. So far I have found this species in the Simmelried and in the Sima Moor in Austria.

The cells of *Aphanothece stagnina* are oval or cylindrical and between 4–9 µm long. Rarely, cells up to 11 µm are found, whereby one must ensure that no dividers are measured. In my population the cells were mostly 7–8 µm long and about 5 µm wide. The largest colonies I found had a diameter of about 500 µm and were irregularly shaped. I have never found macroscopic colonies up to several centimeters in diameter.

The differentiation from the very similar species *Aphanothece microscopica* is insufficiently defined. The cell shape and also the size of the cells are practically identical. Komarek & Anagnostidis (1999) cite the size of the colonies as a distinguishing feature. In *Aphanothece stagnina* it is said to reach 4–6 cm, whereas the colonies of *Aphanothece microscopica* are said to reach a maximum of 2 mm. However, Huber-Pestalozzi (1938) mentions the width of the cells as a distinguishing feature. The cells of *Aphanothece microscopica* are said to be 2–3 µm wide, while those of *Aphanothece stagnina* are said to be 3–6.5 µm wide. In addition, according to Huber-Pestalozzi, the cells of *Aphanothece microscopica* are said to have individual mucous membranes, while the cells of *Aphanothece stagnina*

are embedded in a homogeneous mucus. In my opinion, the size of the colonies is not a good determinant because young colonies must also be taken into account. I therefore agree with the distinguishing features of Huber-Pestalozzi. The cells of my population had a width of mostly 5 µm and I could not detect individual mucus sheaths around the cells. It must therefore be *Aphanothece stagnina*.

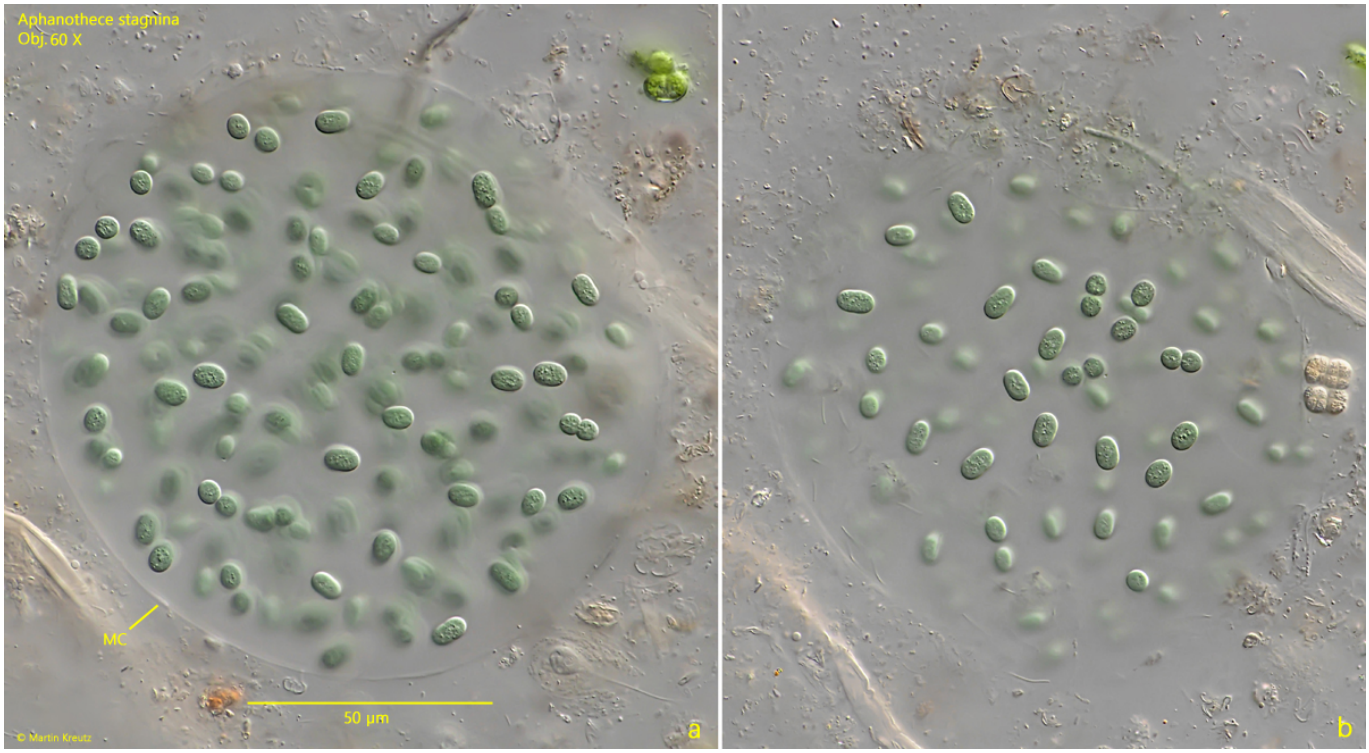


Fig. 1 a-b: *Aphanothece stagnina*. D = 125 µm (of colony). Two focal planes of a young, spherical colony embedded in detritus. MC = margin of the colony. Obj. 60 X.

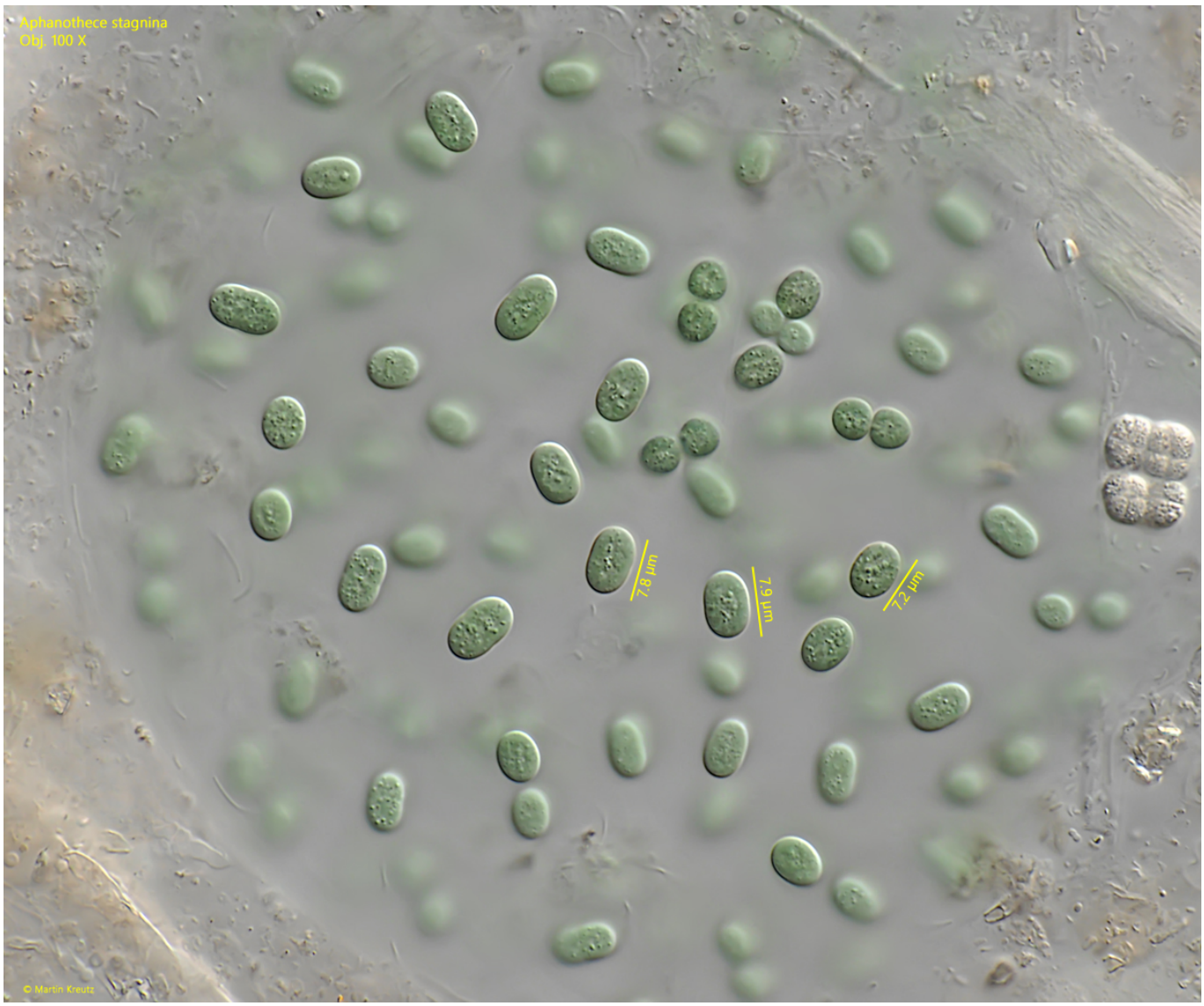


Fig. 2: *Aphanothece stagnina*. L = 7–8 µm (of cells). The cells of the colony as shown in fig. 1 a-b in detail. Obj. 100 X.

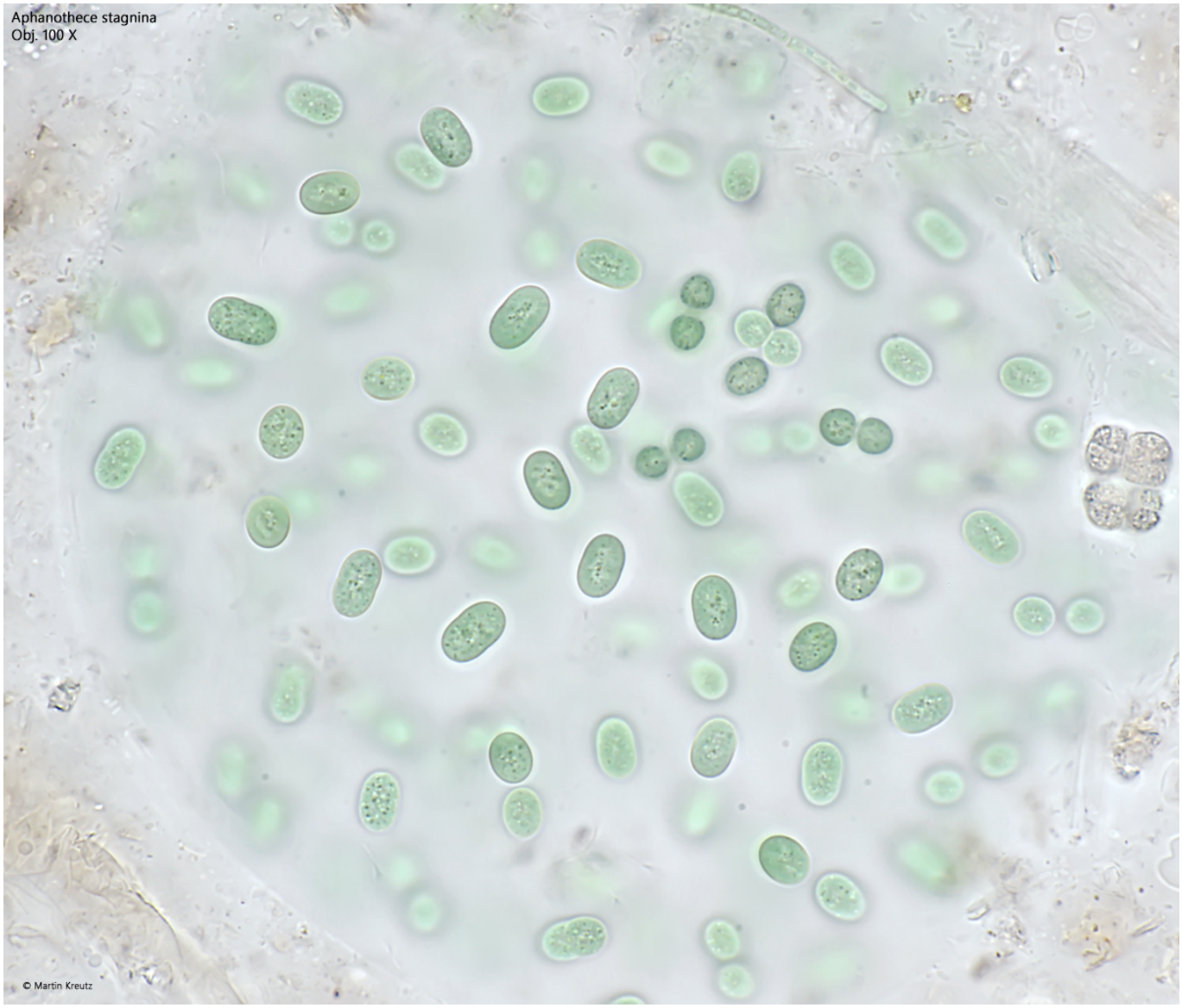


Fig. 3: *Aphanothece stagnina*. L = 7–8 µm (of cells). The cells shown in fig. 2 in brightfield illumination. Note the fine, dark granules in the cytoplasm of the cells. Obj. 100 X.

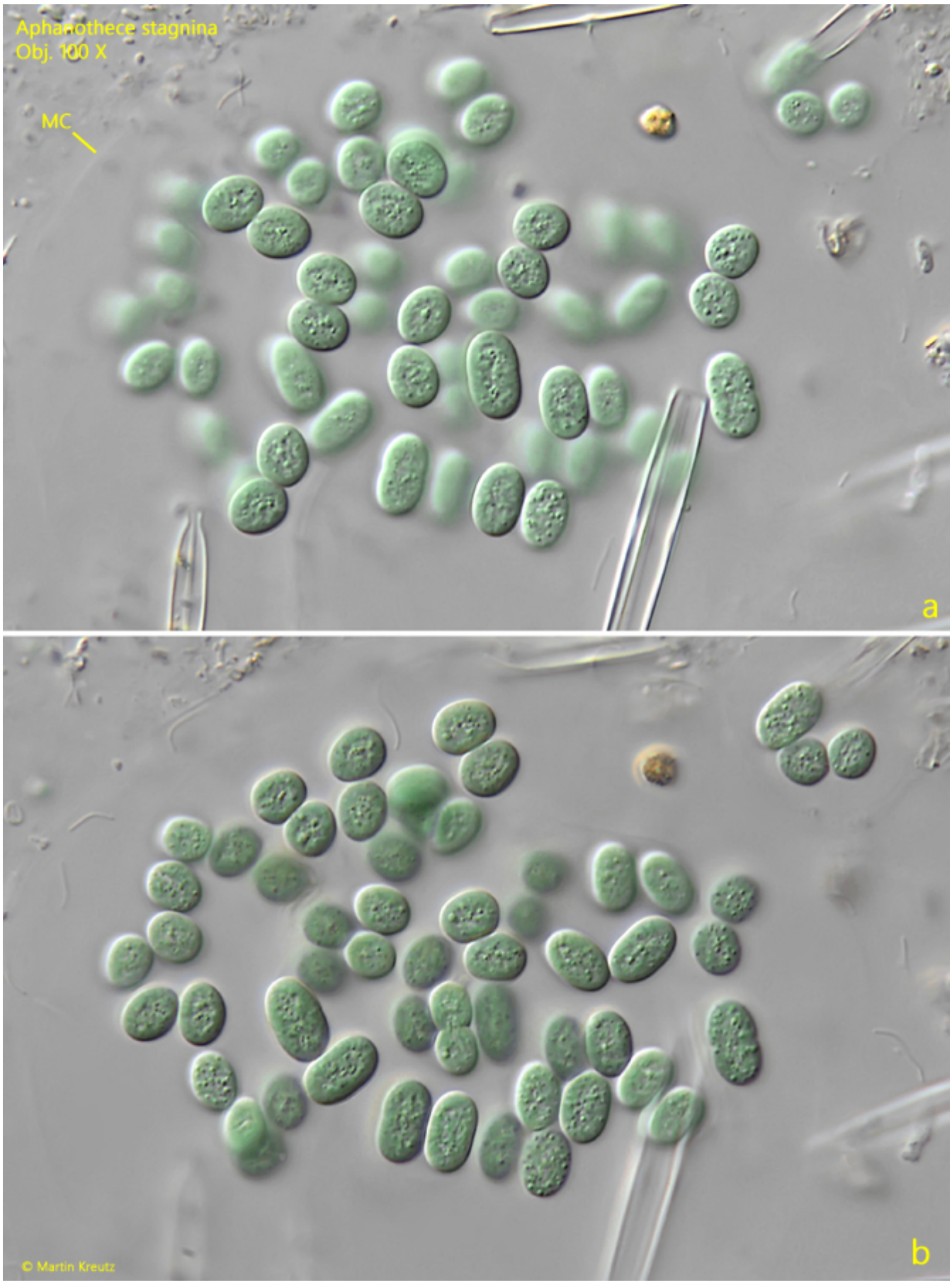


Fig. 4 a-b: *Aphanothece stagnina*. L = 5–9.5 µm (of cells). Two focal planes of a second, small colony in DIC. MC = margin of the colony. Obj. 100 X.

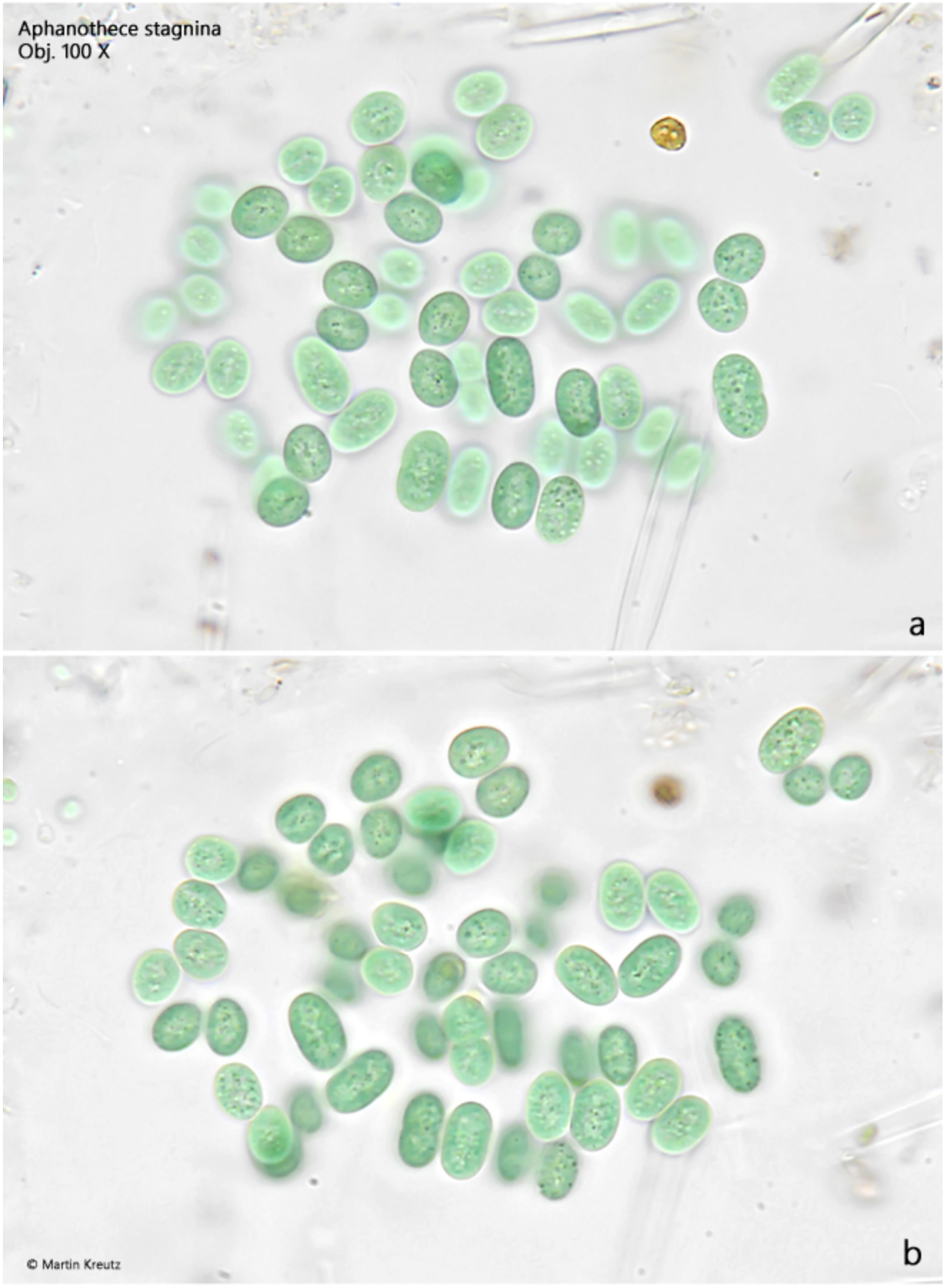


Fig. 5 a-b: *Aphanothece stagnina*. L = 5–9.5 µm (of cells). The colony as shown in fig. 4 a-b in brightfield illumination. Obj. 100 X