Tortitaenia obscura

(Ralfs) Brook, 1998

Most likely ID: n.a.

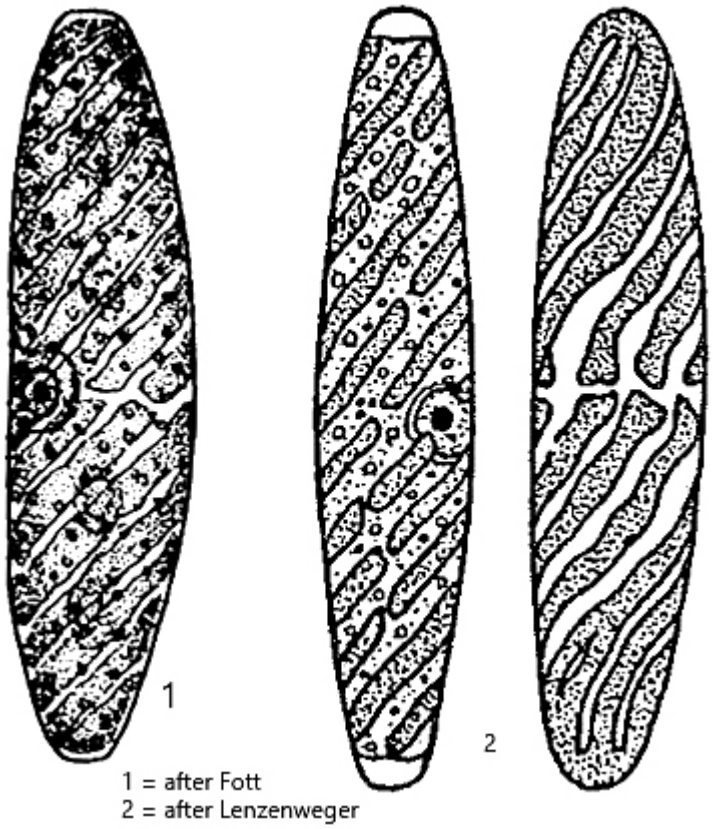
Synonym: *Spirotaenia obscura*

Sampling location: Schwemm (Austria)

Phylogenetic tree: *Tortitaenia obscura*

Diagnosis:

- cells loaf-shaped or broadly ellipsoid, apices rounded
- length 40–230 µm, width 10–30 µm
- often two cells in hyaline mucus sheath
- nucleus laterally shifted from longitudinal cell axis
- chloroplasts 3-8 spirally arranged ribbons
- pyrenoids scattered between chloroplasts



Tortitaenia obscura

Tortitaenia obscura is described by Lenzenweger (2003) as widespread. I was only able to find *Tortitaenia obscura* once in June 2026 in the Schwemm bog in Austria. However, the species was extremely rare in the samples.

The cells of *Tortitaenia obscura* are usually found in pairs within a common mucus envelope (s. fig. 1 a-b). They are oriented longitudinally to each other and slightly offset. With an average length of about 100 µm, the cells are quite large. However, their size is very variable. The cell shape can be described as loaf-shaped. It is not spindle-shaped like the similar species *Spirotaenia erythrocephala*. A key feature of *Tortitaenia obscura* are the 3–8 ribbon-shaped chloroplasts, which are arranged spirally. Their margin is irregularly wavy. Numerous oil droplets are located between the chloroplasts (s. fig. 2 b). I found the nucleus laterally shifted from the longitudinal cell axis (s. fig. 3)

I found all the pyrenoids arranged along the longitudinal cell axis (s. fig. 2 a). Some of the pyrenoids were elongated in shape. This arrangement contradicts the description by Lenzenweger (2023), who observed the pyrenoids scattered among the chloroplasts. It is difficult to say whether he accidentally identified the oil

droplets between the chloroplasts as pyrenoids. All other features match the description of *Tortitaenia obscurum* by Lenzenweger.

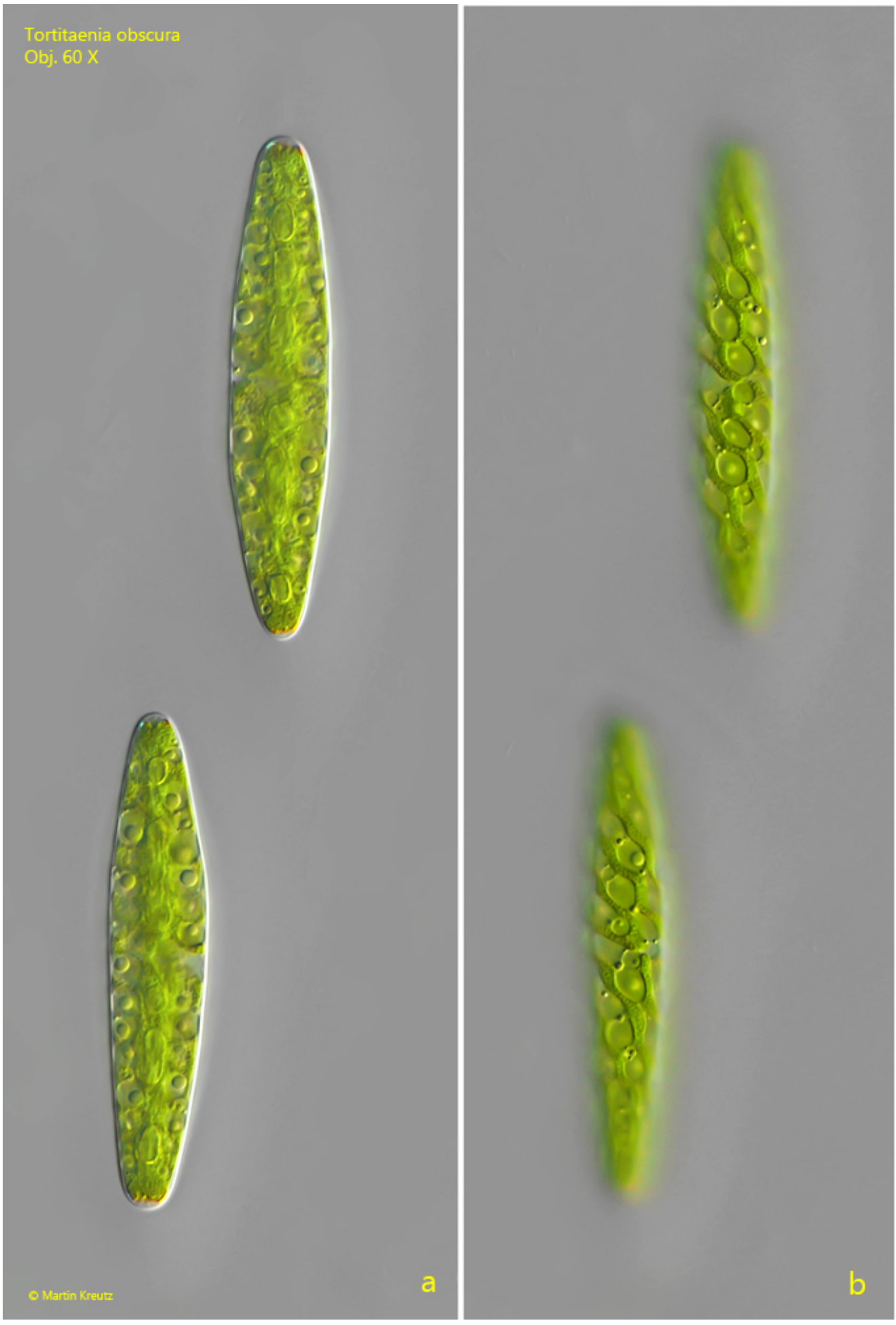

Tortitaenia obscura
Obj. 60 X
© Martin Kreutz
a
b

Fig. 1 a-b: *Tortitaenia obscura*. L = 102 µm. Two focal planes of two cells in a common mucus sheath. Obj. 60 X.

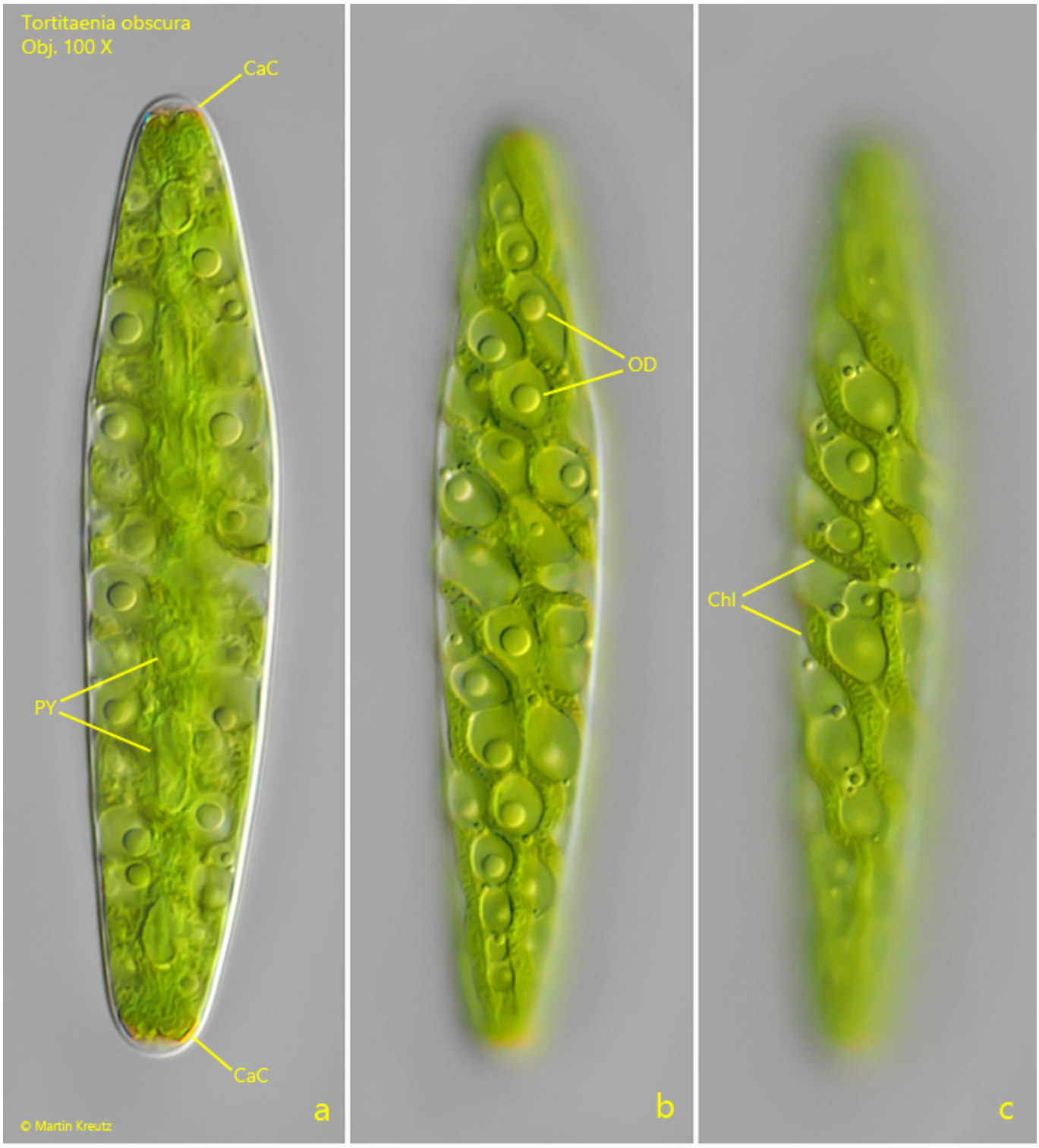


Fig. 2 a-c: *Tortitaenia obscura*. L = 102 µm. Three focal planes of a cell as shown in fig. 1 a-b. Note the spirally running ribbon-shaped chloroplasts (Chl) and the oil droplets (OD) scattered between them. The pyrenoids (PY) are partly elongated and arranged in the longitudinal cell axis. In the apices of the cell orange colored carotinoid caps (CaC) are visible. Obj. 100 X.

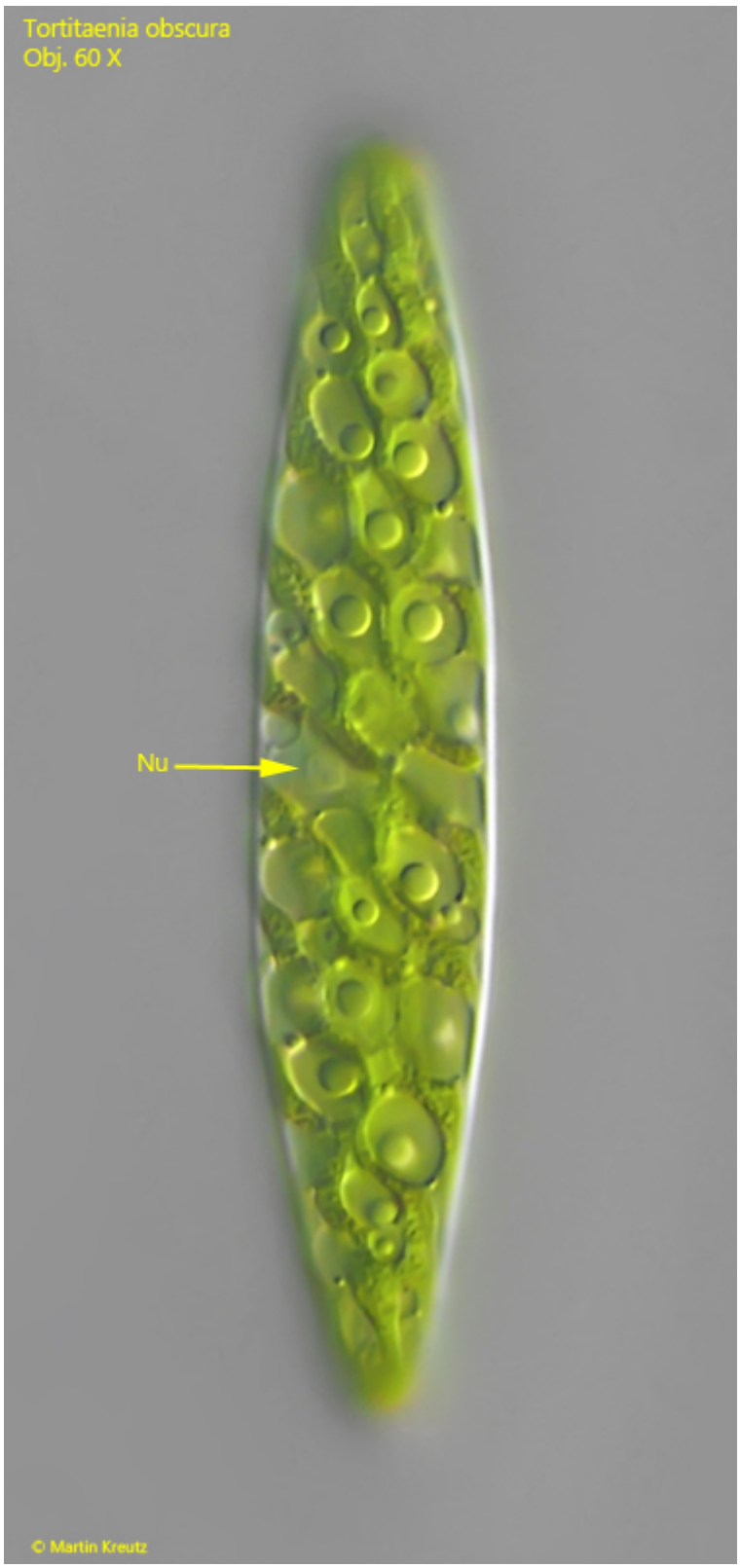


Fig. 3: *Tortitaenia obscura*. L = 102 µm. Focal plane on the laterally shifted nucleus (Nu). Obj. 60 X.