Euglena sanguinea Ehrenberg, 1832

Most likely ID: n.a.

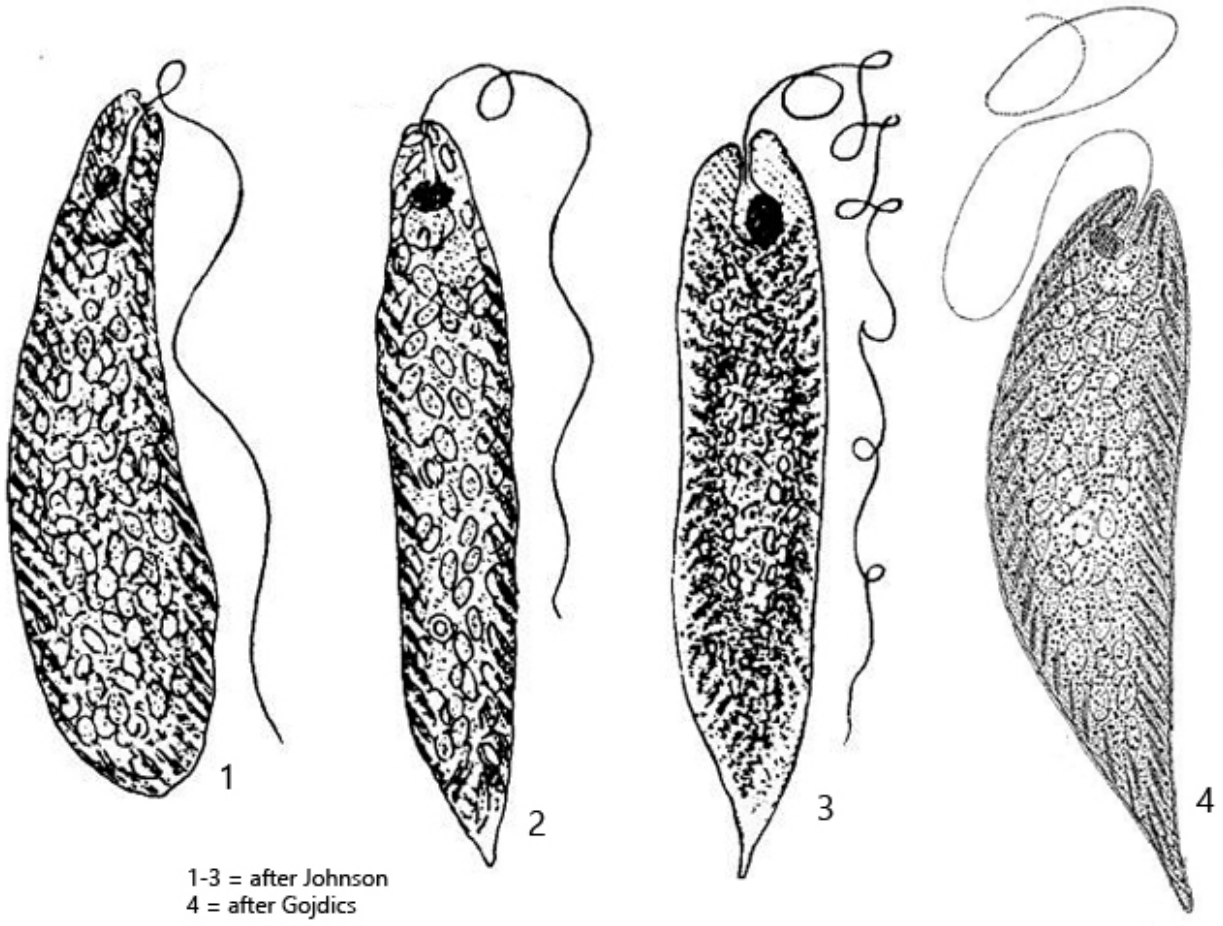
Synonym: n.a.

Sampling location: Simmelried

Phylogenetic tree: *Euglena sanguinea*

Diagnosis:

- body cylindrically or broadly spindle-shaped
- posterior end tapered to a blunt point
- color brick-red or orange by haematochrome granules (sometimes absent)
- length 90–150 µm
- chloroplasts dissected and radially arranged
- radial arms of chloroplasts extending to cell periphery
- each chlorplast with a double sheathed pyrenoid
- flagellum 1.5–2 time of body length
- striation of pellicle counterclockwise
- eyespot round, large
- spherical nucleus central
- paramylon grains spherical or ovoid, located near center of cell



Euglena sanguinea

I find *Euglena sanguinea* very frequently between floating plants in the Simmelried, but also in the uppermost mud layer. The specimens are often intensely orange or red-orange colored due to a high concentration of haematochrome granules in the cells (s. figs. 1 a-c and 2 a-c). Then the cells are almost opaque and even appear black in brightfield illumination . However, I also often find green specimens with very few haematochrome granules in the cytoplasm. These specimens are much easier to examine.

In addition to the orange coloration, the shape of the chloroplasts is an important identification feature of *Euglena sanguinea*. If the focal plane is under the pellicle, about 10-20 µm long, ribbon-shaped chloroplasts become visible, which are obviously arranged parallel to the striation (s. fig. 4 a). These ribbons have irregular edges. However, these are only the parts of the chloroplasts that reach the cell surface. The chloroplasts of *Euglena sanguninea* consist of several ribbons (arms), which are arranged radially around a sheated pyrenoid. They therefore form the center of the chloroplasts and lie deeper in the cell. The three-dimensional shape and arrangement of the radial choroplasts is difficult to recognize.

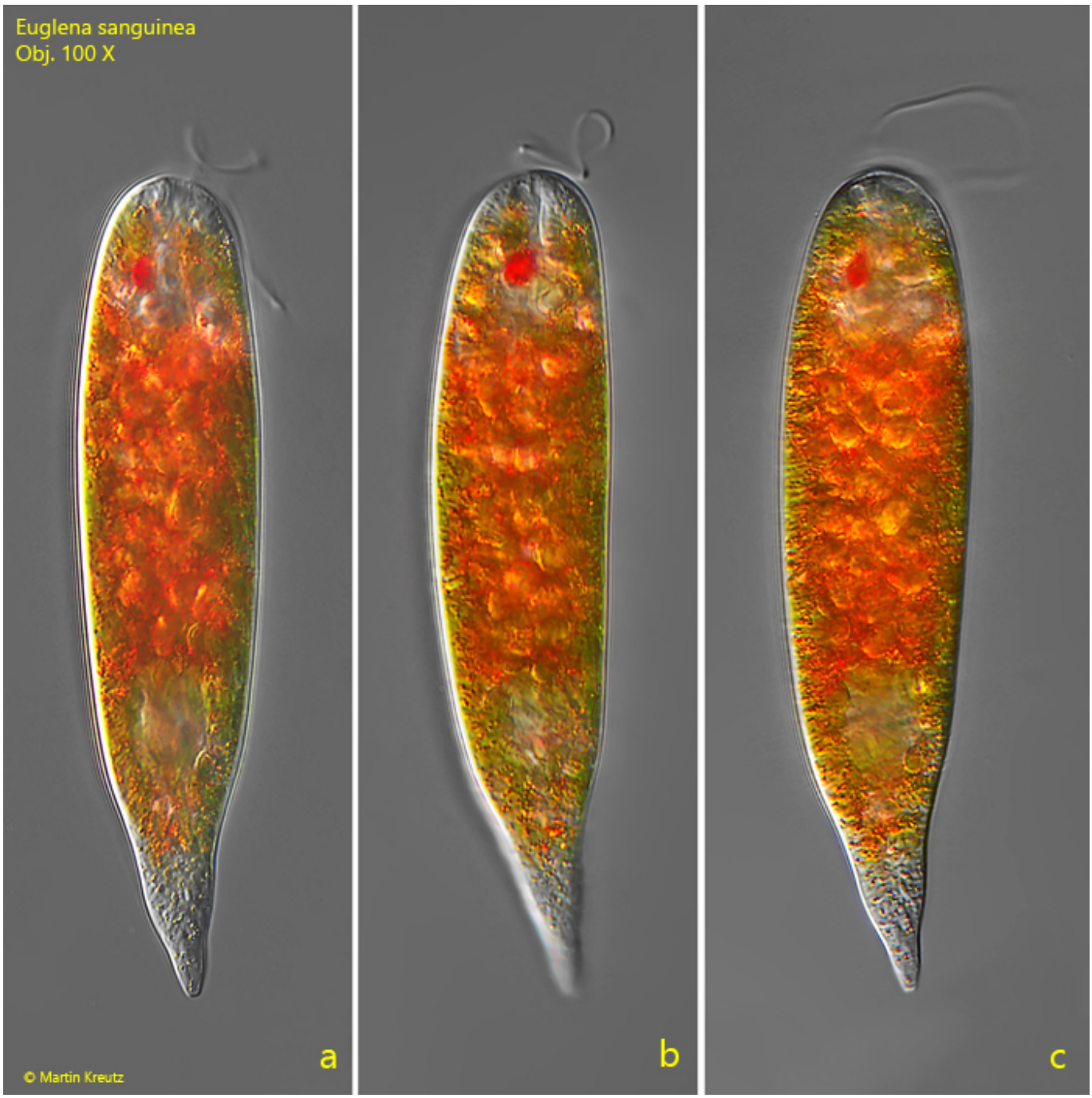


Fig. 1 a-c: *Euglena sanguinea*. L = 106 µm. A freely swimming specimen colored orange-red bei masses of haematochrome granules, scattered in the cytoplasm. Obj. 100 X.

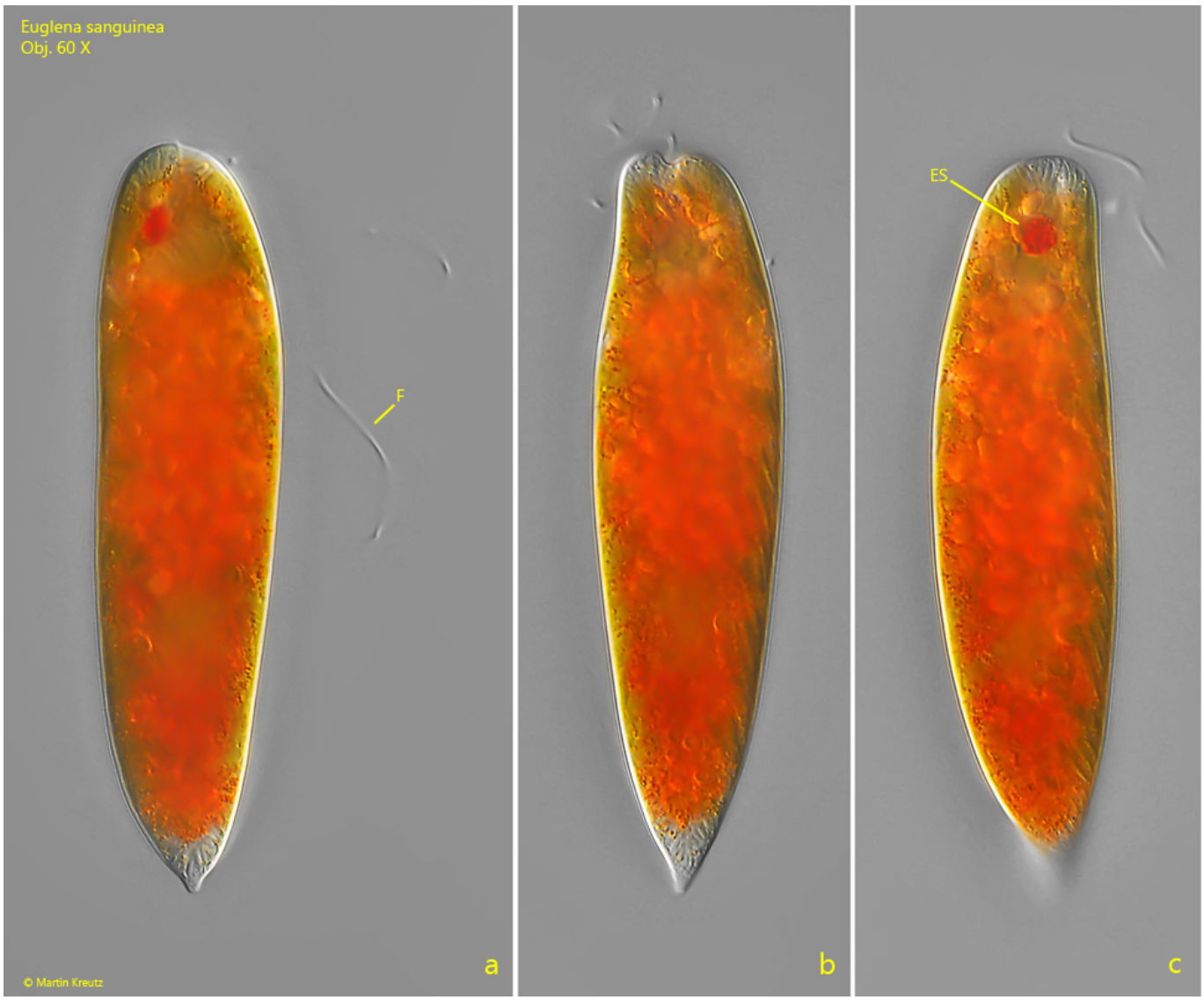


Fig. 2 a-c: *Euglena sanguinea*. L = 129 µm. A second freely swimming specimen. Note the large, spherical eyespot (ES). F = flagellum. Obj. 60 X.

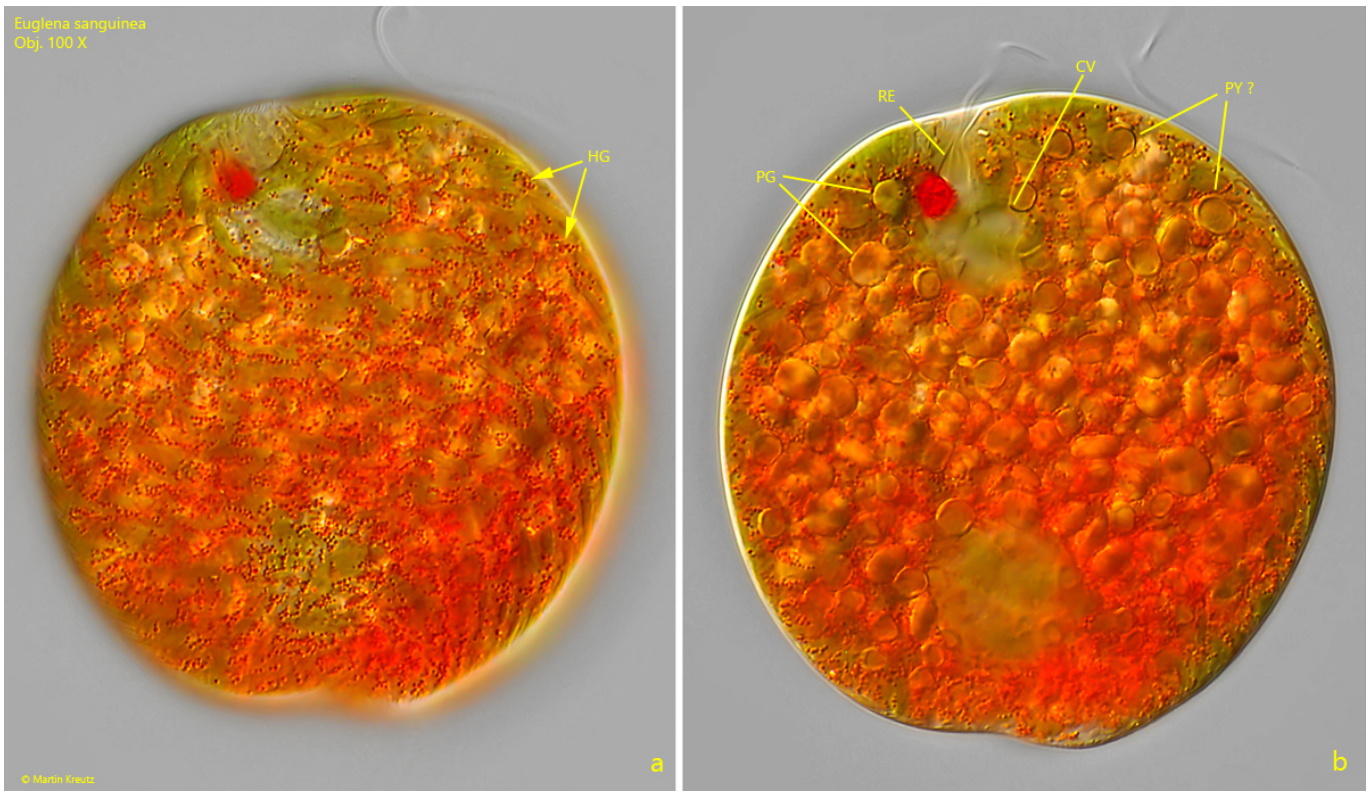


Fig. 3 a-b: *Euglena sanguinea*. Two focal planes of the squashed specimen as shown in fig. 2 a-c. The haematochrome granules (HG) beneath the pellicle are arranged roughly parallel to the striation of the pellicle (a). CV = contractile vacuole, PG = paramylon graines, PY ? = probably the sheated pyrenoids, RE = reservoir. Obj. 100 X.

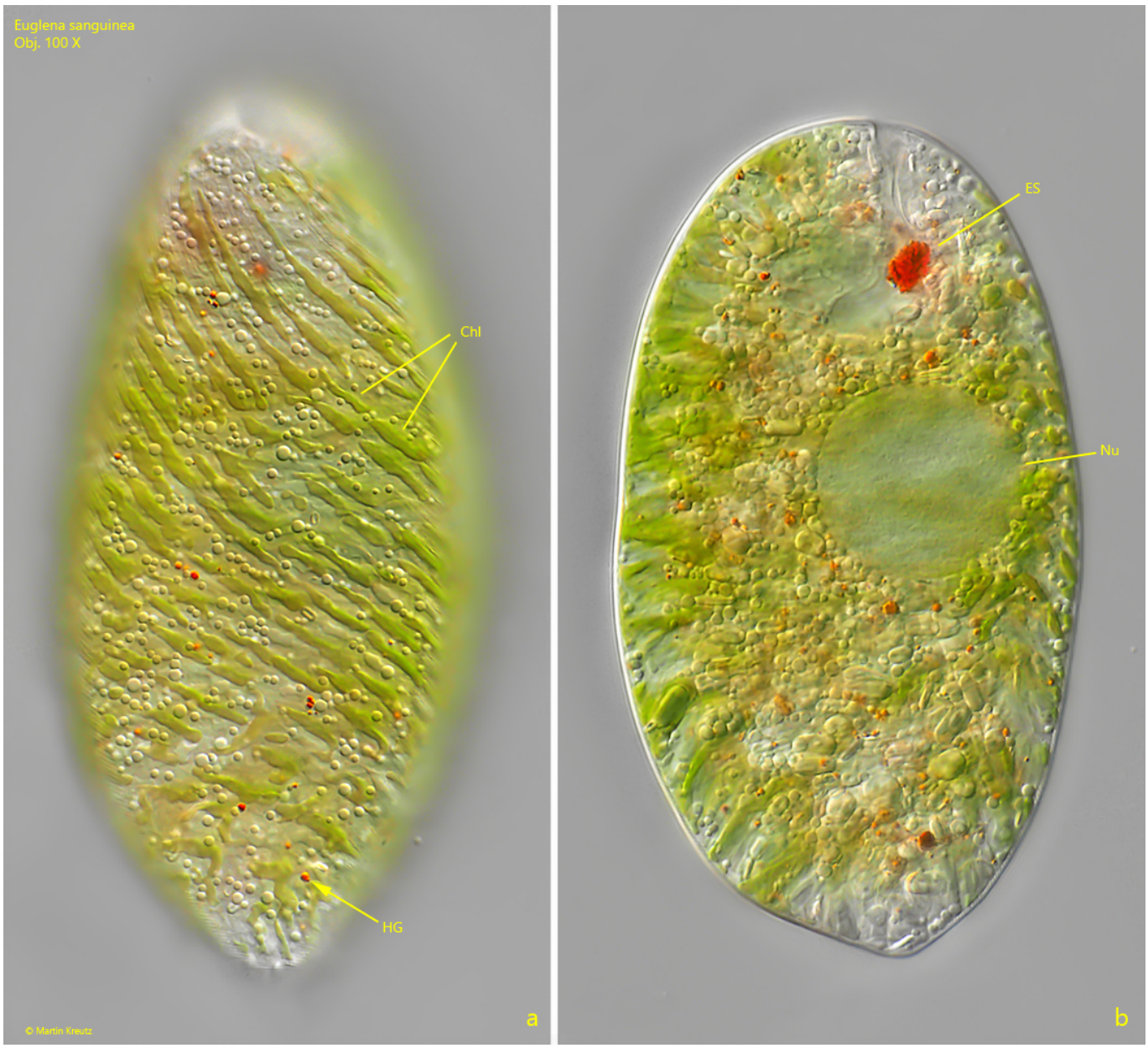


Fig. 4 a-b: *Euglena sanguinea*. A specimen with only a little haematochrome granula (HG). The arms of the radial chloroplasts (Chl) reaching the pellicle are arranged parallel to the striation. ES = eyespot, Nu = nucleus. Obj. 100 X.

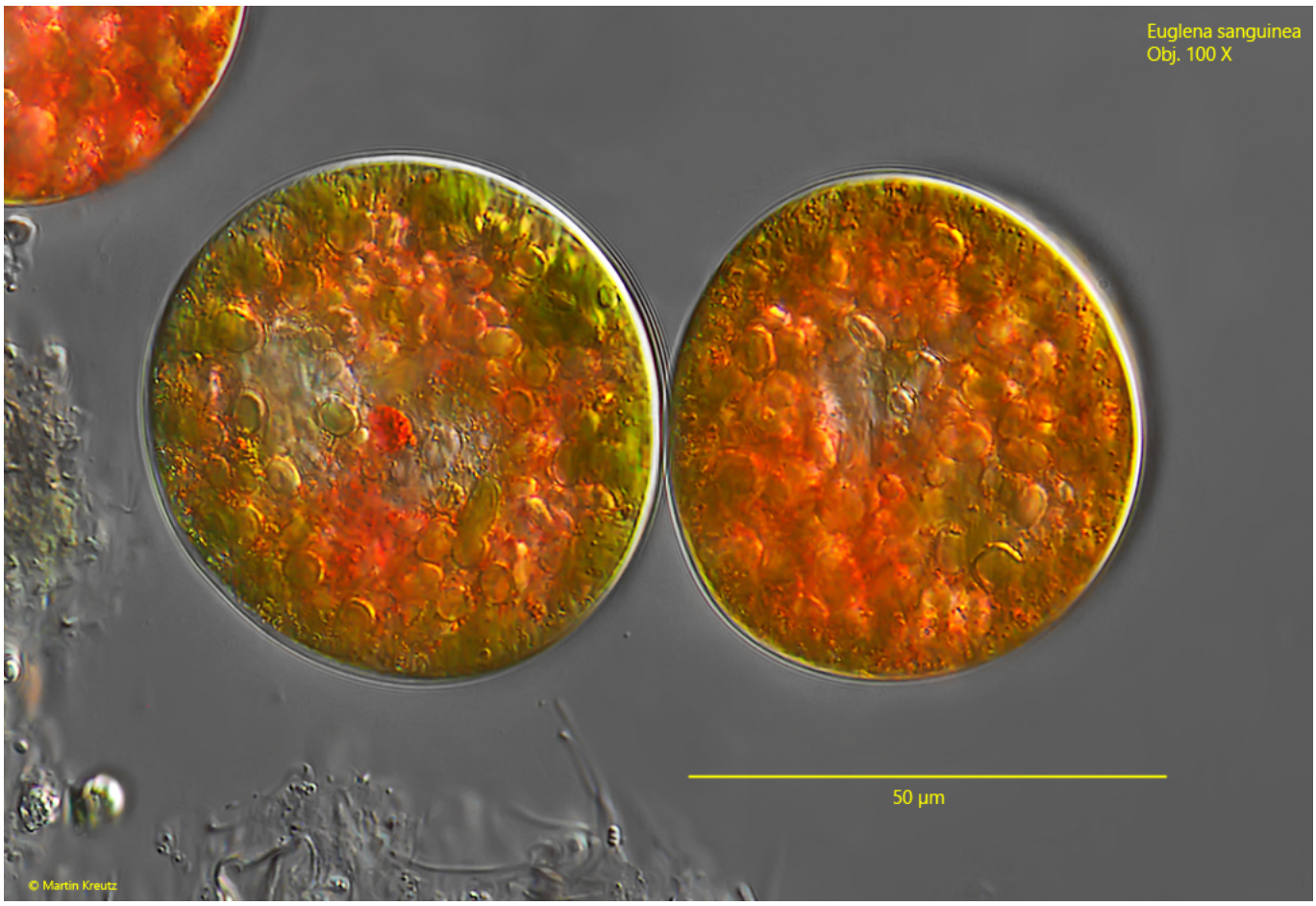


Fig. 5: *Euglena sanguinea*. The cysts are also colored orange or brick-red. They have a diameter of about 50 µm. The cell wall is thin and smooth. Obj. 100 X.