Colacium vesiculosum Ehrenberg, 1834

Most likely ID: n.a.

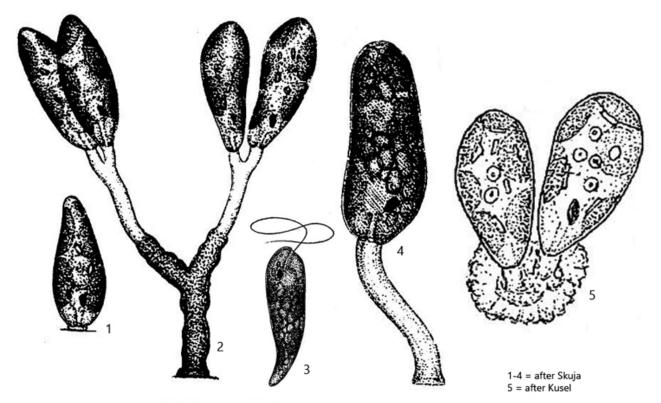
Synonym: n.a.

Sampling location: Pond of the convent Hegne

Phylogenetic tree: Colacium vesiculosum

Diagnosis:

- sessile cells ovoid, ellipsoid or pear-shaped
- length 18-28 µm
- 4-8 parietal, disc-shaped chloroplasts
- each chloroplast with a lenticular pyrenoid
- pyrenoid below chloroplast
- cells on branched gelatinous stalks
- growing as sessile colonies on planktonic crustaceans and rotifers
- pellicle with fine striation, counterclockwise
- motile cells with one flagellum of body length
- one eyespot
- one contracile vacuole



Colacium vesiculosum

Colacium vesiculosum usually settles on planktonic crustaceans and rotifers. So far I have found *Colacium vesiculosum* almost exclusively on rotifers with a rigid lorica, such as Keratella, Polyarthra or Anuraeopsis (s. figs. 1 a-b, 2 a-c and 4 a-b).

Colacium vesiculosum forms a colorless, gelatinous stalk after attachment. The stalk branches with each cell division. This gives rise to tree-like colonies of 2-16 specimens. I have not yet been able to detect larger colonies. I have also observed that the gelatinous stalks turn orange-brown after a short time due to the deposition of iron compounds (s. fig. 3).

The sessile cells are usually oval, pear-shaped or spherical. The distal end is never pointed. Characteristic are the somewhat irregularly shaped, disc-shaped chloroplasts, each of which has a pyrenoid, which is always located on the underside (s. fig. 6 c). The cells can form a flagellum and detach from the stalk. These motile cells resemble Euglena and are more or less cylindrical. The posterior end is usually slightly thickened and rounded.

Stein (1878) described the similar species *Colacium arbuscula*. However, the characteristics are practically identical to those of Colacium vesiculosum, except that the stalks are said to have more branching. Huber-Pestalozzi (1955) regarded it as a subspecies of Colacium

vesiculosum (Colacium vesiculosum var. arbuscula) and Skuja (1948) considers Colacium arbuscula to be only an older developmental stage of Colacium vesiculosum, in which more cell divisions have taken place, resulting in larger, branched colonies. I agree with this view.

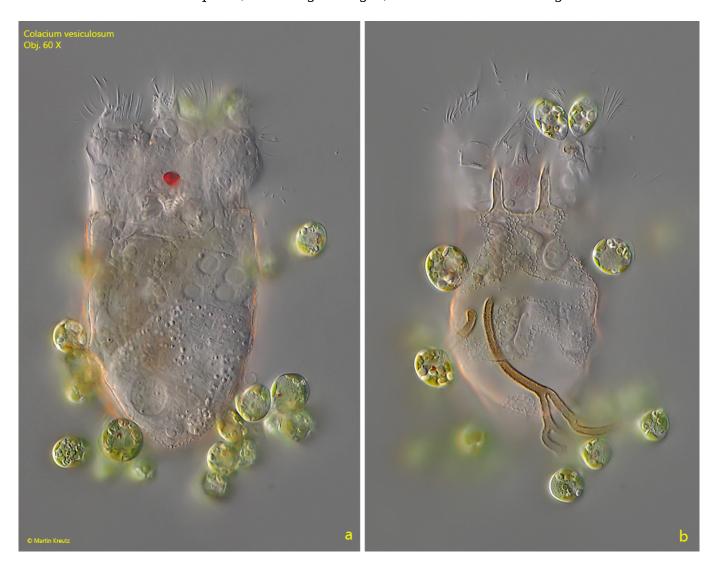


Fig. 1 a-b: Colacium vesiculosum. $L = 16-18 \mu m$ (of cells). Two focal planes of the rotifer Keratella cochlearis, on which several colonies have settled on branched stalks. Obj. 60 X.

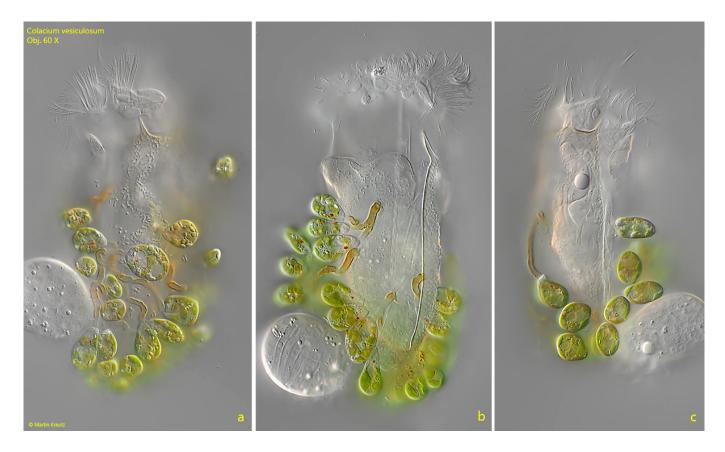


Fig. 2 a-c: Colacium vesiculosum. L = 18-21 μm (of cells). Several colonies with branched stalks on three different specimens of the rotifer $\it Keratella\ cochlear is.$ Obj. 60 X.



Fig. 3: Colacium vesiculosum. $L = 18-21 \mu m$ (of cells). The colonies as shown in fig. 1 b in detail. Note the discoloration to orange-brown of the gelatinous stalks after excretion by the cell due to the deposition of iron salts (arrows). Obj. 100 X.

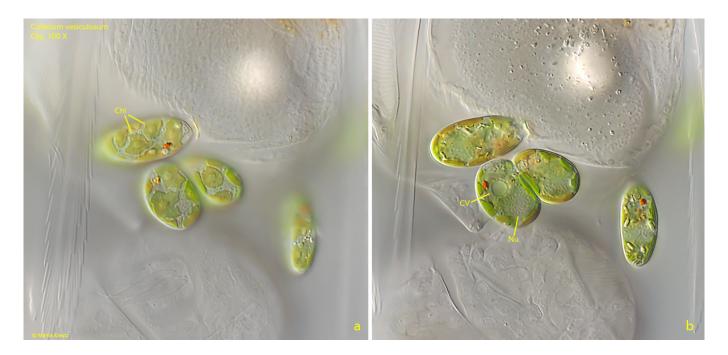


Fig. 4 a-b: Colacium vesiculosum. $L = 18-21 \mu m$ (of cells). Some cells have settled on the rotifer *Polyarthra vulgaris* and start to build a stalk. Chl = chloroplasts, CV = contractile vacuole, Nu = nucleus. Obj. 100 X.

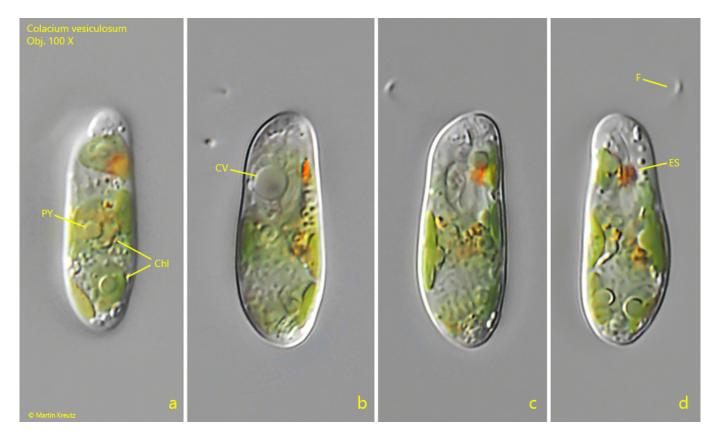


Fig. 5 a-d: Colacium vesiculosum. $L = 21 \mu m$. A freely swimming, detached specimen. Chl = chloroplast, CV = contractile vacuole, ES = eyespot, F = flagellum, PY = pyrenoid. Obj. 100 X.



Fig. 6 a-d: Colacium vesiculosum. $L = 27 \mu m$. A second freely swimming, detached specimen. Note the fine striation of the pellicle (PS) and the pyrenoid below the chloroplast (PY, arrow). Chl = chloroplast, CV = contractile vacuole, ES = eyespot, F = flagellum, PG = paramylon grains. Obj. 100 X.

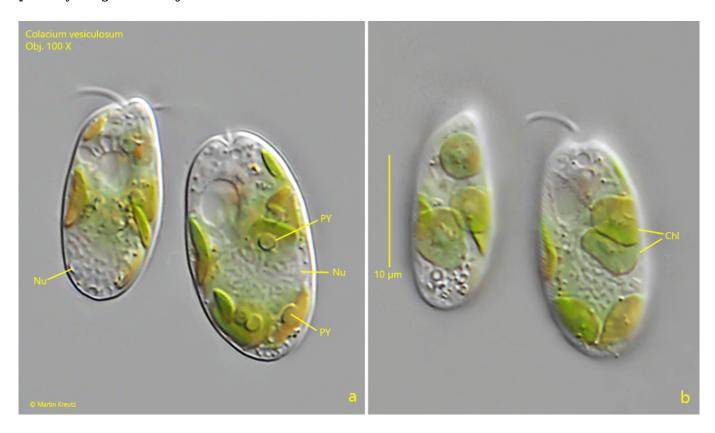


Fig. 7 a-b: Colacium vesiculosum. Two focal planes of two squashed specimens. Note the

disc-shaped chloroplasts (Chl). CV = contractile vacuole, Nu = nucleus. Obj. 100 X.