Leptothrix ochracea

(Roth, 1797) Kützing, 1843

Most likely ID: n.a.

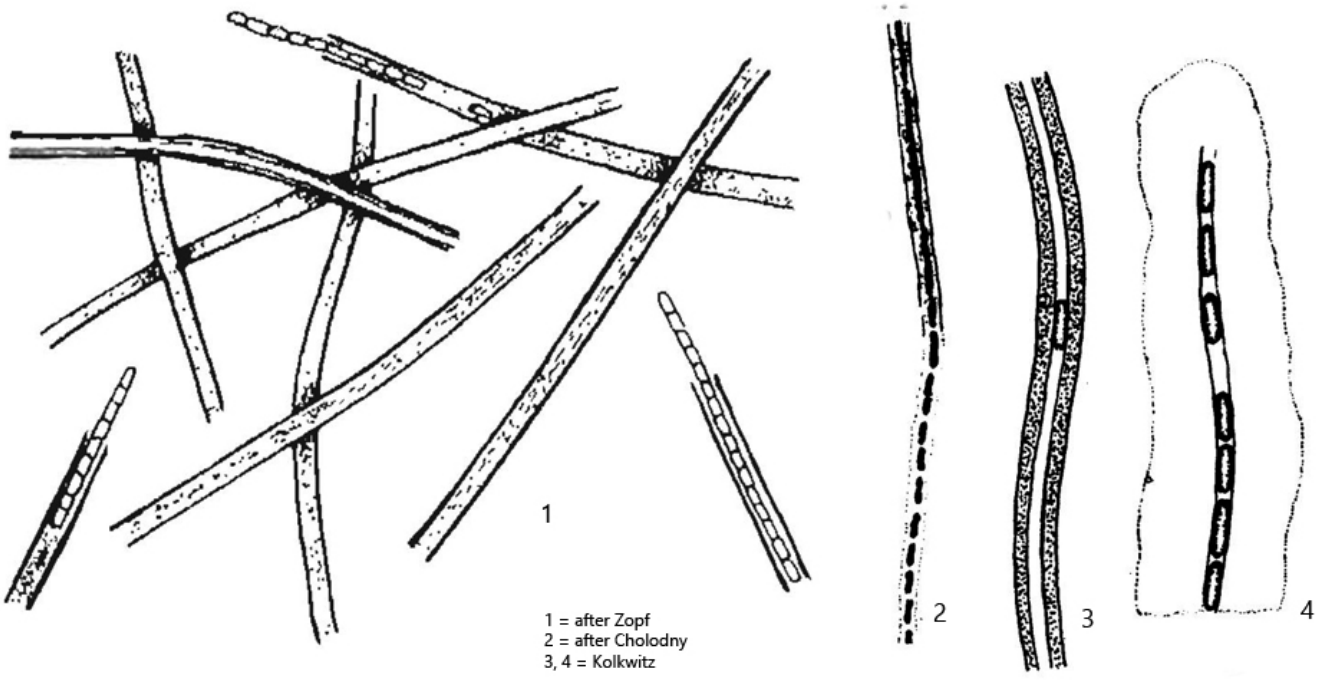
Synonym: n.a.

Sampling location: Simmelried, Purren pond, Ulmisried

Phylogenetic tree: *Leptothrix ochracea*

Diagnosis:

- filaments covered with gelatinous sheath (sometimes colorless)
- gelatinous sheath colorless and thin in young filaments
- gelatinous sheath thicker, brown or orange-brown in old filaments
- filament of cells in a central, smooth tube (diameter about 1 µm)
- cells can glide within central tube
- end of of filments not tapered
- filaments not branched, not attached to substrate



Leptothrix ochracea

I find *Leptothrix ochracea* very frequently in my samples. Especially in old samples, dense mats form on the surface and on the vessel wall. *Leptothrix ochracea* also likes to settle on the floating coverslip.

Leptothrix ochracea is an “iron bacterium” which is able to oxidize both iron and manganese. It forms long filaments of chain-like connected cells, which are surrounded by a gelatinous sheath. In young colonies, this gelatinous sheath is still thin and colorless. Later, this gelatinous sheath grows and becomes orange or brown due to iron and manganese deposits. The bacteria form a smooth tube in the middle in which they can also move. The bacteria are not described exactly in the literature. According to my measurements, they are 3.5-5.0 µm long and about 1.2 µm thick. Grains can be seen in the cells (s. fig. 2).

The gelatinous sheath does not appear to be very elastic. Filaments are often found which are smoothly broken (s. fig. 3). The ends of the filaments are not tapered, as is typical for the similar species *Leptothrix discophora*.



Fig. 1: *Leptothrix ochracea.* L = 4.8–5.0 µm (of bacteria cells). A filament with a thick gelatinous sheath colored orange-brown due to iron and manganese precipitations. Obj. 100 X.

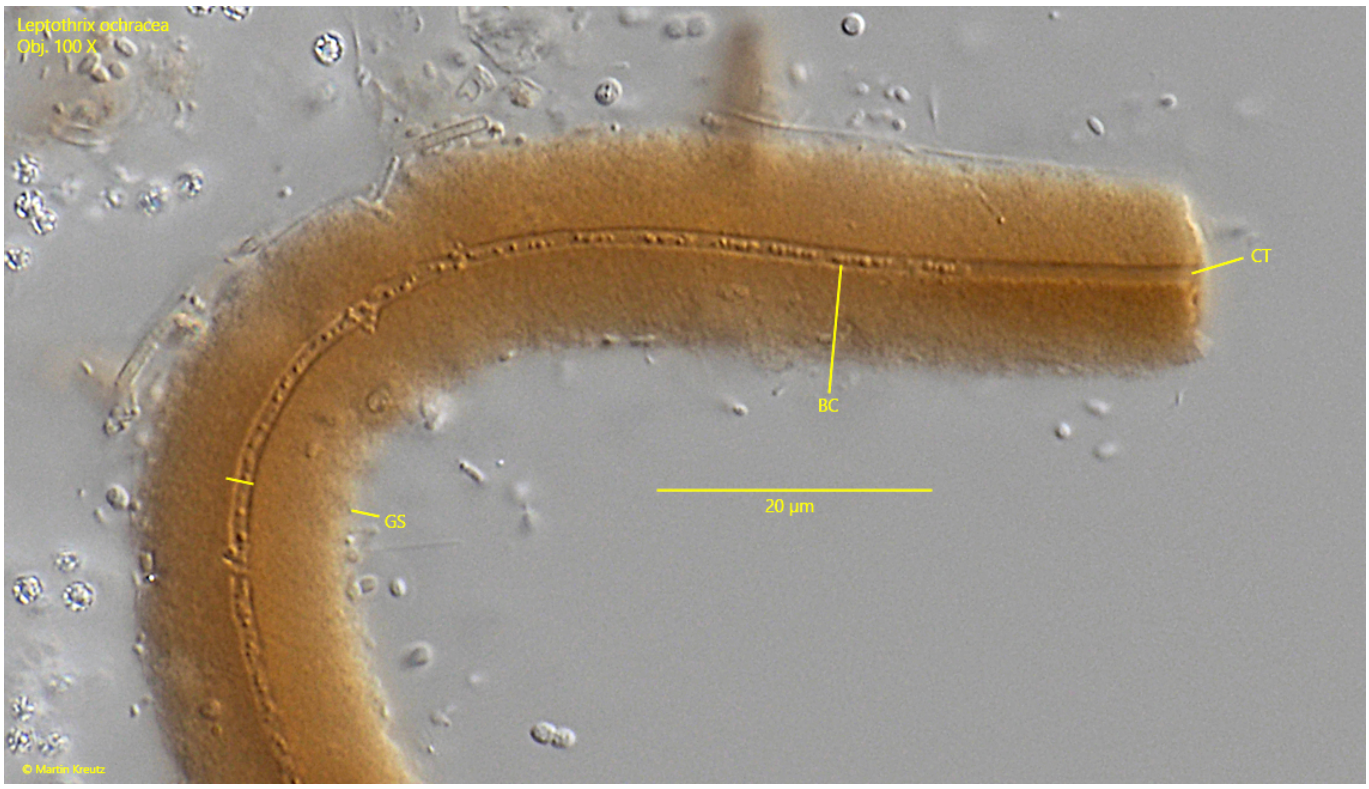


Fig. 2: *Leptothrix ochracea.* L = 4.8–5.0 µm (of bacteria cells). The end of the filament as shwon in fig. 1 in detail. The filament of bacteria cells (BC) is visible in the smooth, central tube (CT). The tube has a diameter of 1.5 µm. The gelatinous sheath (GS) of the filament has a diamter of 15 µm. In the bacteria cells small granules are visible. Obj. 100 X.

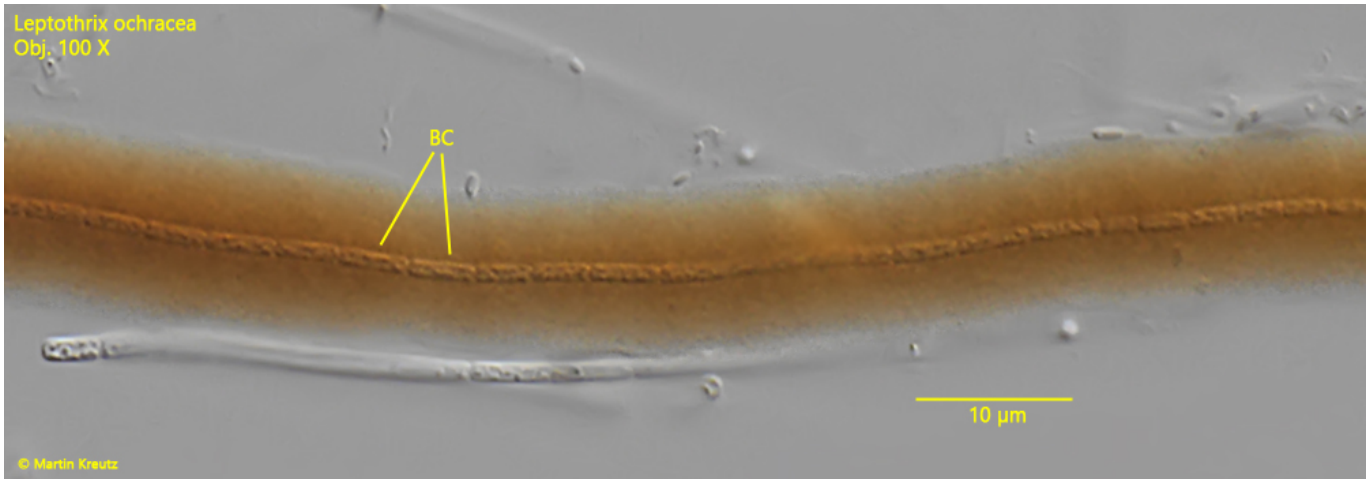


Fig. 3: *Leptothrix ochracea.* L = 3.7–4.2 µm (of bacteria cells). A second filament with a chain of bacteria cells (BC). Obj. 100 X.



Fig. 4: *Leptothrix ochracea.* L = 3.5–5.1 µm (of bacteria cells). A young filament with an almost transparent gelatinous sheath. BC = bacteria cells. Obj. 100 X.