Anabaena aequalis Borge, 1906

Most likely ID: n.a.

Synonym: n.a.

Sampling location: Lauchsee Moor (Austria)

Phylogenetic tree: Anabaena aequalis

Diagnosis:

- trichomes single, straight or slightly bent
- vegetative cell barrel-shaped
- length 6.5-10 μm, width 4.5-6.0 μm (of vegetative cells)
- heterocysts oval or barrel-shaped 5.5-10 μmlong, 5.5-6.5 μm wide
- akinetes cylindrical with rounded ends, 22-63 µm long, 10-15 µm wide
- akinetes covered with membrane
- membrane is separated from akinete by a gap
- heterocysts and akinetes separated by vegetative cells
- cells blueish green



after Skuja

I found *Anabaena aequalis* in July 2025 in the <u>Lauchsee Moor</u> in Austria. This cyanobacterium forms unbranched filaments that settled on the wall of the sample container.

A characteristic feature of *Anabaena aequalis* are the very long, cylindrical akinetes, which are always separated from the heterocysts by several vegetative cells. Additionally, the akinetes have a somewhat rough membrane that stands off from the cells like a bubble (s.

fig. 5 a-b). The akinetes are densely filled with highly refractive vesicles. The heterocysts are thick-walled and yellow-green. In my population, the heterocysts were barrel-shaped (s. fig. 6). However, they can also take on an almost oval shape. The vegetative cells are also barrel-shaped. In my population, they were between 6.5-9 µm long. They are blue-green in color.

Anabaena aequalis can be confused with the similar species Anabaena cylindrica and Anabaena inaequalis. However, in Anabaena cylindrica, the akinetes and heterocysts lie directly next to each other, and in Anabaena inaequalis, the width of the vegetative cells varies greatly within the filament.



Fig. 1: Anabaena aequalis. Overview of several trichomes. Obj. 20 X.



Fig. 2: Anabaena aequalis. Some trichomes in detail in brightfield illumination. AK = akinete, HC = heterocyst, VC = vegetative cells. Obj. 20 X.



Fig. 3: Anabaena aequalis. Overvie of some trichomes in DIC. AK = akinete, HC = heterocyst, VC = vegetative cells. Obj. 60 X.



Fig. 4: Anabaena aequalis. L = 6.5–8.2 μm (of vegetative cells). The terminal cells of 4 filaments. MS = detached membraneous sheath. Obj. 100 X.

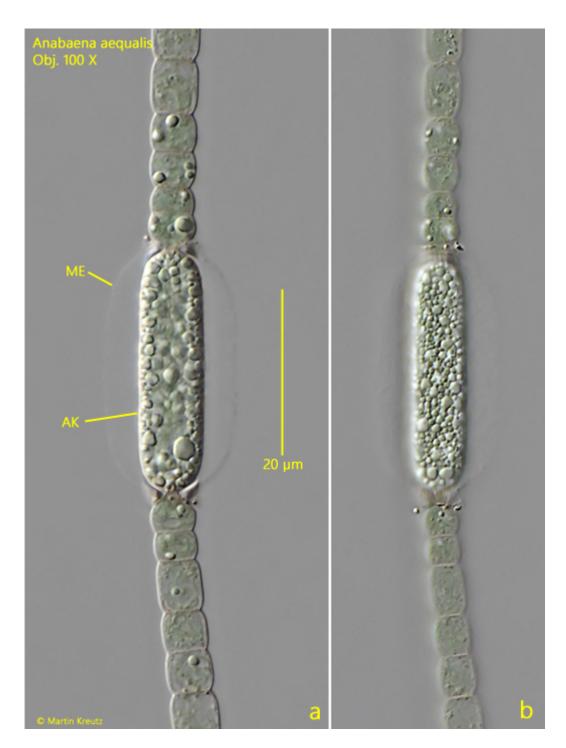


Fig. 5 a-b: Anabaena aequalis. Two focal planes auf an akinete (AK) with a length of 30 μm . The akinete is covered by a membrane (ME) with a distance to the cell surface. The membrane is very fine granulated. Obj. 100 X.

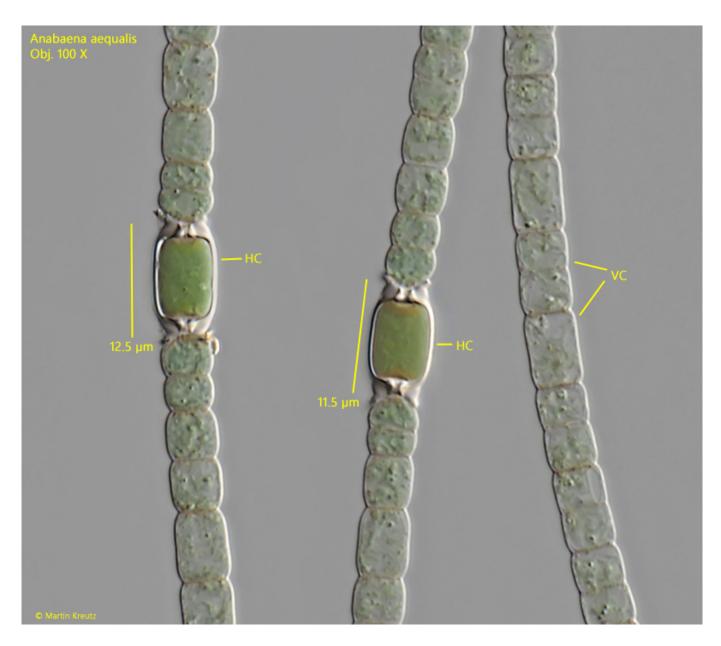


Fig. 6: Anabaena aequalis. The barrel-shaped heterocysts (HC) with a thickened cell wall. VC = vegetative cells. Obj. 100 X.