

## *Anabaena lapponica* (Borge, 1913)

**Most likely ID:** n.a.

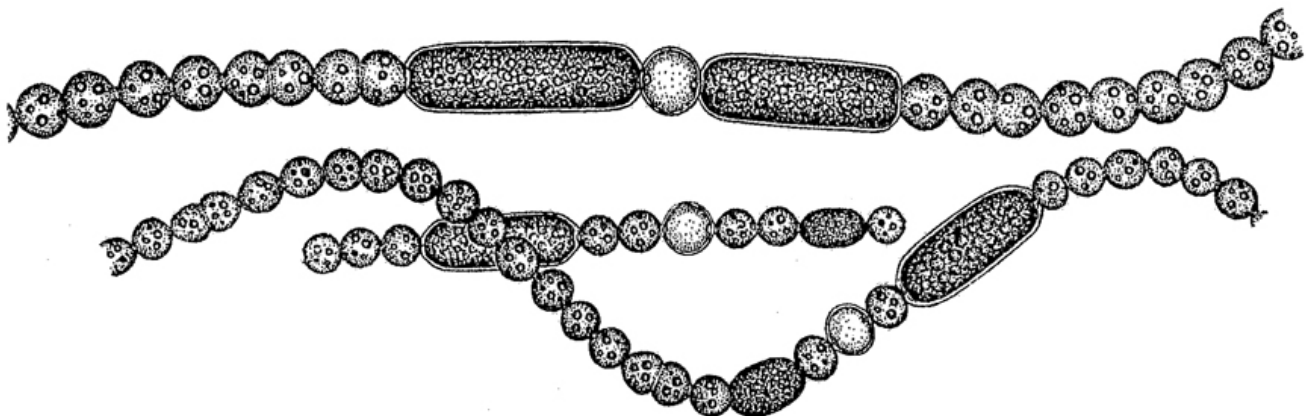
**Synonym:** n.a.

**Sampling location:** [Simmelried](#)

**Phylogenetic tree:** [Anabaena lapponica](#)

### **Diagnosis:**

- trichomes single, straight or slightly bent with indistinct sheath
- vegetative cell spherical, diameter (5)-6-9  $\mu\text{m}$
- heterocysts spherical, diameter 9-11.5  $\mu\text{m}$
- akinetes cylindrical, smooth, 11.5-13-(21)  $\mu\text{m}$  wide , 20-55-(85)  $\mu\text{m}$  long
- akinetes next to heterocysts, blueish green



after Skuja

*Anabaena lapponica*

So far I have only found *Anabaena lapponica* between floating plant masses in the [Simmelried](#). However, *Anabaena lapponica* is not very common there.

*Anabaena lapponica* can be recognized by the spherical, vegetative cells and the large,

cylindrical akinetes (s. figs. 2 a-b and 3 a-b). The akinetes are blue-green and stand out from the olive green of the vegetative cells. In my population, the akinetes were 25–35 µm long. The surface of the akinetes of *Anabaena lapponica* is smooth, which distinguishes it from the similar species *Anabaena echinospora*, in which the akinetes have a spiky surface.

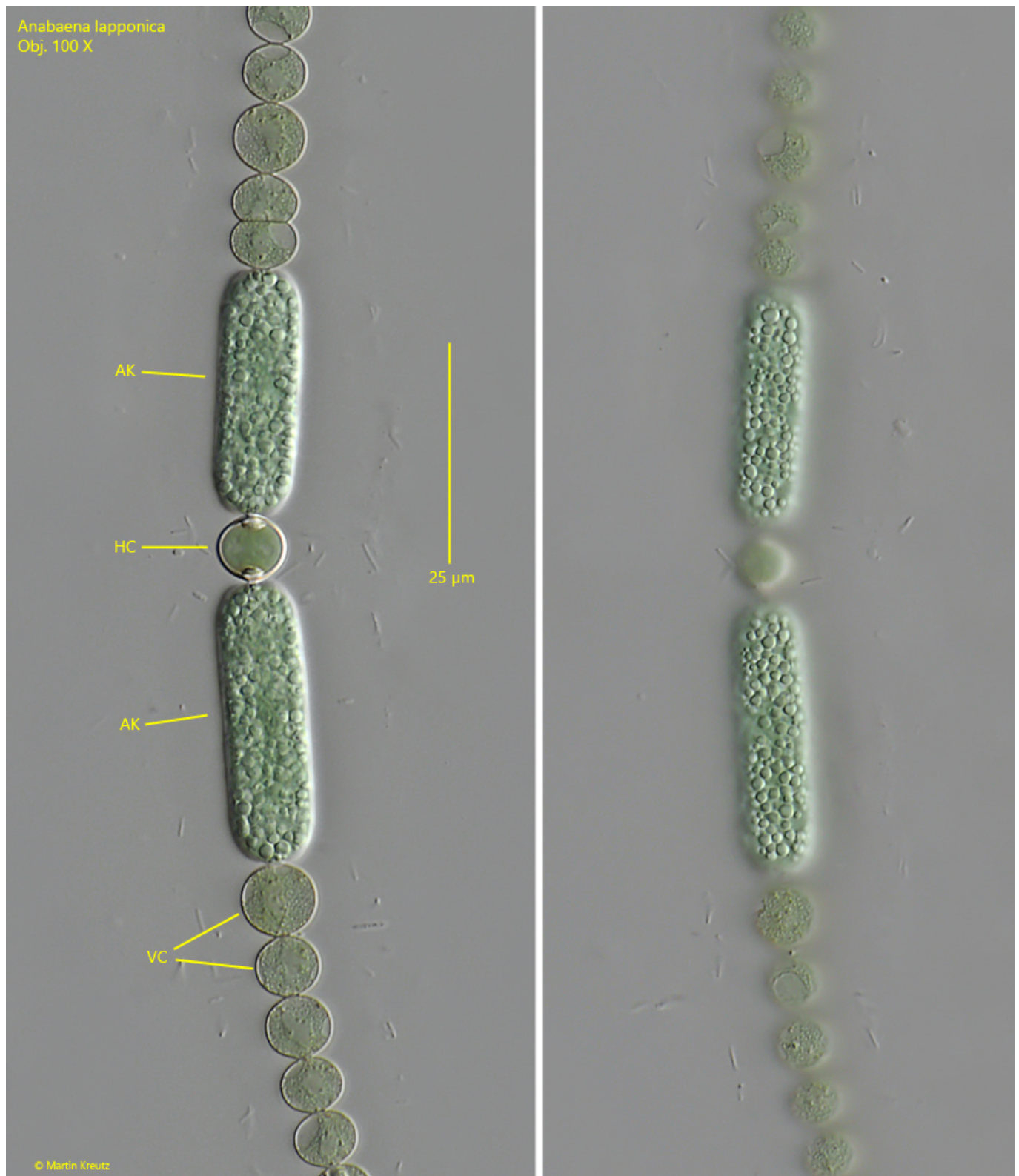
Between each two akinetes there is a spherical heterocyst with a thickened cell wall. In these specialized cells, nitrogen is fixed to ammonium with the help of the nitrogenase enzyme. As nitrogenase is inhibited by oxygen, a thickened cell wall has formed to shield the oxygen.

Anabaena lapponica  
Obj. 60 X



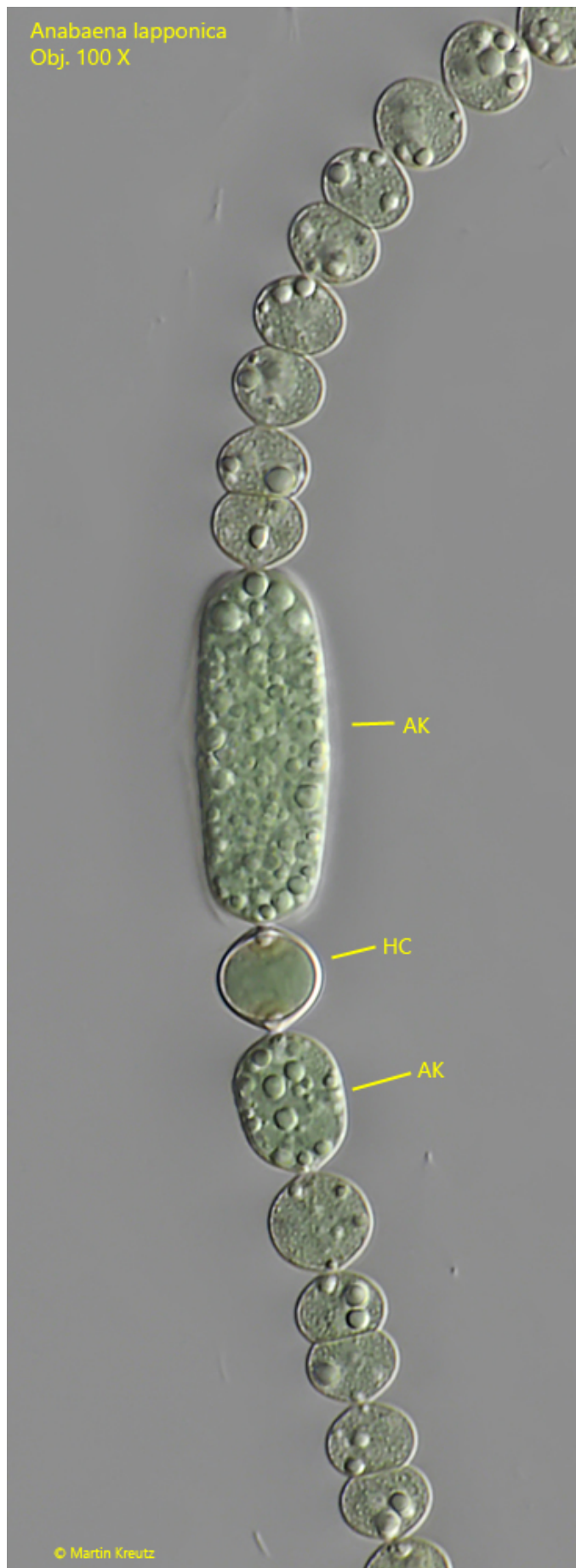
© Martin Kreutz

**Fig. 1:** *Anabaena lapponica*. Overview of some straight and bent trichomes. Obj. 60 X.



**Fig. 2 a-b:** *Anabaena lapponica*. Two focal planes of the cylindrical akinetes (AK) and the spherical heterocyst (HC) in between. The two akinetes are 28 and 33 µm long. The diameter of the heterocyst is 8.3 µm. VC = vegetative cells. Obj. 100 X.





**Fig. 3 a-b:** *Anabaena lapponica*. Two further trichomes with akinetes (AK) of different sizes

with the spherical heterocysts (HC) in between. Obj. 100 X.