# ***Anabaena lapponica* Borge, 1913**

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

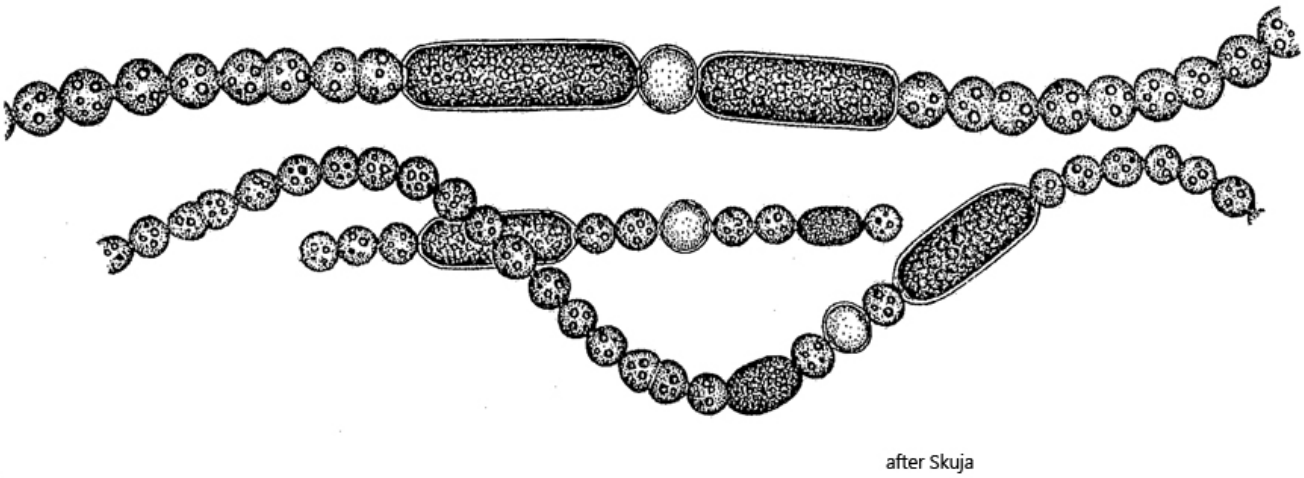
**Synonym:** n.a.

**Sampling location:** Simmelried

**Phylogenetic tree:** *Anabaena lapponica*

**Diagnosis:**

- trichomes single, straight or slightly bent with indistinct sheath
- vegetative cells spherical, diameter (5)–6–9 µm
- heterocysts spherical, diameter 9–11.5 µm
- akinetes cylindrical, smooth, 11.5–13–(21) µm wide , 20–55–(85) µm long
- akinetes next to heterocysts, blueish green




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


Anabaena lapponica
Obj. 60 X
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**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.

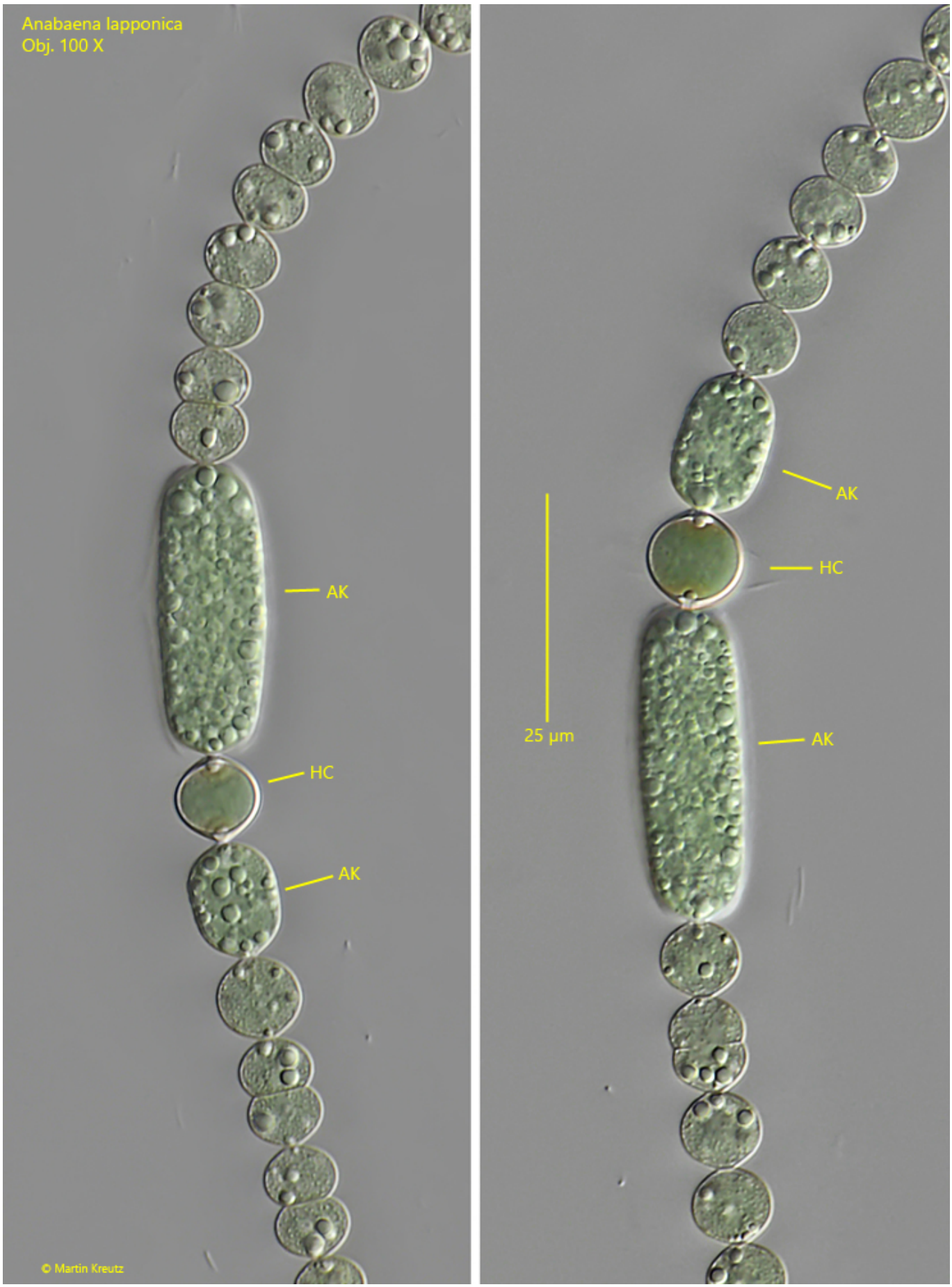



**Fig. 3 a-b:** *Anabaena lapponica*. Two further trichomes with akinetes (AK) of

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