

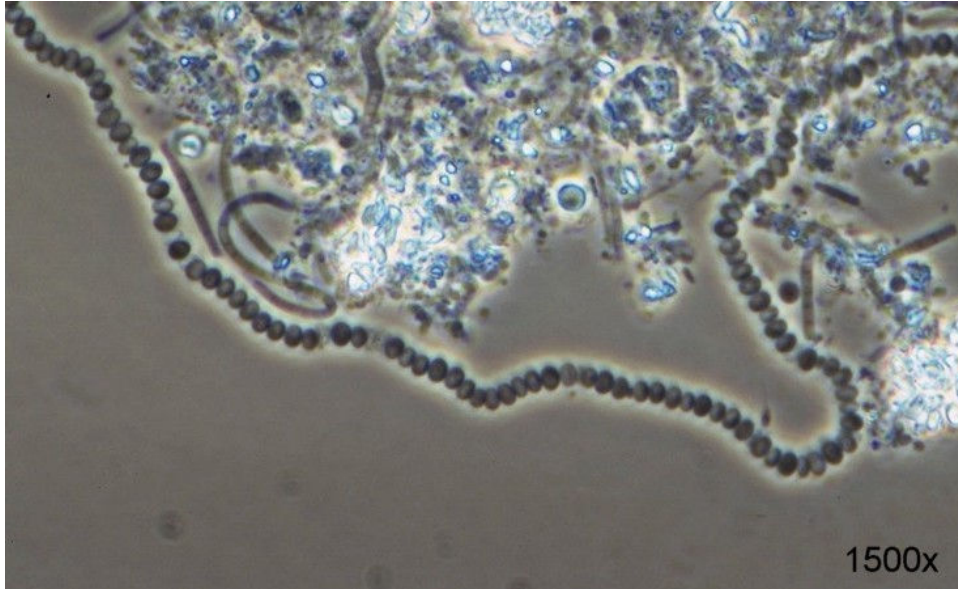
***Isosphaera* sp.**

Resembles: see remark

Probes: phylum specific: PLA-46 [3]; species specific: NLIMIII-301 [2, 4], see remark

Frequency occurrence (200 samples; 175 WTPs):

- observed with a FI \geq 1 in 7 samples
- observed with a FI \geq 3 in 0 samples



Characteristics

- bent/curled filaments, free in the liquid between the flocs;
- not motile;
- not branched;
- filament length variable;
- cell diameter ca. 1.6 μ m;
- sheath absent;
- attached growth absent;
- septa clearly visible;
- spherical cells;
- no sulphur storage;
- Gram negative, or Gram variable;
- Neisser negative.

Remark

Probe NLIMIII-301, mentioned in references 2 and 4 as a *Nostocoida limicola* III probe, does not hybridise with this morphotype, but with filaments very much resembling an *Isosphaera* sp., a member of the *Planctomycetales* [1].

See also *N. limicola* III lemma.

Physiology

No information available.

Occurrence in activated sludge

Type IF-55 is frequently observed in activated sludge, but the population is usually small. Thus, it is not possible to correlate this morphotype with a specific wastewater.

Control options

Not relevant, as Type IF-55 does not contribute to bulking of activated sludge.

References

1. Liu, J. R., C. A. McKenzie, E. M. Seviour, R. I. Webb, L. L. Blackall, C. P. Saint and R. J. Seviour (2001) Phylogeny of the filamentous bacterium “*Nostocoida limicola* III “ from activated sludge. *Int. J. Syst. Evol. Microbiol.* **51**, 195-202.
2. Liu, J. R. and R. J. Seviour (2001) Design and application of oligonucleotide probes for fluorescent in situ identification of the filamentous bacterial morphotype *Nostocoida limicola* in activated sludge. *Environ. Microbiol.* **3** (9), 551-560.
3. Neef, A., R. Amann, H. Schlesner and K. H. Schleifer (1998) Monitoring a widespread group: in situ detection of planctomycetes with 16S rRNA-targeted probes. *Microbiol.* **144**, 3257-3266.
4. Seviour, R. J., R. J. Lui, E. M. Seviour, C. A. McKenzie, L. L. Blackall and C. P. Saint (2002) The “*Nostocoida limicola*” story: resolving the phylogeny of this morphotype responsible for bulking in activated sludge. *Water Sci. Technol.* **46** (1-2), 105-110.

Slide show images

- 1-5: morphology at various magnifications
- 6: Gram stained
- 7-8: FISH images with probe NLIMIII-301