

22<sup>th</sup> INTERNATIONAL SPECIALIZED COURSE  
OPERATION AND CONTROL OF ACTIVATED SLUDGE  
PROCESSES USING MICROBIOLOGICAL ANALYSIS  
Perugia - Italy

FILAMENTOUS MICROORGANISMS IN ACTIVATED SLUDGE

*Beggiatoa* spp.

OBSERVATION AT 1000x			UNDER PHASE CONTRAST OBSERVATION	
Sulfur Granules	In situ			+ , -
	S Test			+
Other Cell Inclusions				PHA
Filament Diameter				3.0 - 4.0 µm
Filament Length				100 → 500 µm
Filament Shape				Straight
Filament Location				Free in liquid between the flocs
Cell Septa clearly observed				- , +
Indentations at Cell Septa				-
Sheath				-
Attached Growth				-
Cell Shape and Size				Rectangles 2.0 - 4.0 x 6.0 - 8.0 µm
Notes:				Motile: flexing and gliding
UNDER DIRECT ILLUMINATION				
Gram Stain				- , +
Neisser Stain	Filament			-
	Granules			- , +

Phylogenetic  
affiliation:  
Gammaproteobacteria

**Causes:**

- Sulfide

**Remedies:**

- Anoxic/aerobic selectors
- Eliminate septicity/sulfide
- Cl<sub>2</sub>



Sulfur granules



Motile: flexing and gliding