

N85 - 32734

T.M. Schmidt: STRUCTURE AND PHYSIOLOGY OF BEGGIATOA AND THIOTHRIX

Beggiatoa and *Thiothrix* are genera of filamentous, colorless, sulfide-oxidizing bacteria. These organisms are microaerophilic, oxidizing sulfide to sulfur in the presence of oxygen. The sulfur accumulates in intracellular sulfur globules - the outstanding morphological feature of these bacteria. Some strains are able to further oxidize the sulfur to sulfate aerobically or reduce the sulfur to sulfide anaerobically. This metabolic versatility makes these bacteria important links in aquatic sulfur cycles.

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ORIGINAL PAGE IS
OF POOR QUALITY

• positive
- negative
w/- some strains positive
? unknown

CHARACTERISTIC	BEGGIATOX	THIOTHRIX [Ⓢ]	THIOPLECA
Trichome formation	•	•	•
Sheath	-	•	• (common)
Haloform	-	•	-
Rosette formation	-	•	-
Paragonium formation	w/-	•	? (rare, [Ⓢ])
Sliding of intact trichomes	•	-	•
Sliding of paragonia	•	•	? [Ⓢ]
Sulfur inclusions from sulfide	•	•	•
Sulfur inclusions from thiosulfide	w/-	•	? [Ⓢ]
Cytochromes	A.C.C.C	C. (others?)	? [Ⓢ]
Quinones	Q ₁₀	Q ₁₀	? [Ⓢ]
Acetate assimilation	•	•	•
Acetate oxidation to CO ₂	•	? [Ⓢ]	? [Ⓢ]
CO ₂ assimilation	low	moderate	? [Ⓢ]
Reduced sulfur requirement	-	•	? [Ⓢ]
Sulfide-dependent oxygen consumption	•	•	? [Ⓢ]

[Ⓢ] Data pertaining to *Thiothrix* used in this study

[Ⓢ] *Thiopleca* has not been cultured axenically, hence S paragonia

Table I-5. Morphological and physiological comparison of
Thiothrix, *Beggiatox*, and *Thiopleca*.