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Microbiology Research Paper

**Bacterial phylum:** *Proteobacteria*

**Bacterial Class:** *Delta Proteobacteria*

 Myxobacterium belongs to phylum Proteobacteria, and class Delta Proteobacteria. Myxobacterica are strictly aerobic and prokaryote whose unusually social behavior distinguishes them from other groups of prokaryotes. They are primarily a soil bacterium, but also found in treebark, in fresh water and in coastal water. It is a Gram-Negative bacillus and has multiplicity cell’s behavior. Not only Myxobacteria is possessed of the important position on differentiation and development but also considerable attention has been paid to Myxobacteria recently because of producing more abundant useful secondary metabolism, including antibacterial, antifungal, anticancer and thrombosis compounds. “Perhaps the most remarkable aspect of their social behavior during development, when tens of thousands of cells aggregate and form a colorful fruiting body” .(1) The myxobacteria are an interesting family of gliding bacteria that produce fruiting bodies in starvation conditions. Some of them grow by utilizing cellulose, but many of them feed by secreting antibiotics to kill other bacteria and then produce enzymes to lyses the cells of their prey.

 “The fruiting myxobacteria exhibit the most complex behavioral patterns and life cycles of all known bacteria” . (2) The vegetative cells of all myxobacteria are aerobic, Gram-negative, extended rods with either rounded or tapered ends. They glide in water films across solid surfaces, secreting substance (polysaccharide) tracks in which many cells migrate to produce feathery extensions at the colony margin. At the beginning of nutrient running down the cells migrate back along the slime tracks, aggregating by chemotaxis, to form large concentrations of cells. These aggregates then develop into fruiting bodies which are raised above the agar surface and typically develop a bright yellow, red or brown pigmentation. As the vegetative cells migrate upwards into the fruiting body they undergo a progressive differentiation into rounded myxospores.

***Reference***

**(1)**

"American Society for MicrobiologyMicrobiology and Molecular Biology Reviews." *Social and Developmental Biology of the Myxobacteria.* N.p., n.d. Web. 16 Mar. 2013.

**(2 )**

Madigan, Michael T. *Brock Biology of Microorganisms*. 13th ed. San Francisco: Benjamin Cummings, 2012. Print.