

Ecophysiology of microaerophilic iron-oxidizing bacteria

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Iron-oxidizing bacteria (FeOB) gain energy for their growth by oxidation of ferrous iron. Many FeOB are chemolithoautotrophs that can fix inorganic carbon into organic carbon. They play a role as primary producers in chemosynthetic ecosystems. Some species of FeOB produce unique extracellular structures such as twisted ribbon-like stalks or tube-like sheaths (Emerson et al., 2010). Iron oxides attached to these structures are called biogenic iron oxides (BIOS). BIOS accumulate metals on their surface (e.g., Langley et al., 2009). Thus, FeOB are likely to play an important role in elemental cycling in environments. Furthermore, microbial ecosystems supported by FeOB are expected to be widely distributed on the oceanic crusts (Bach and Edwards, 2003). However, little is known about ecophysiology of FeOB because of few cultivated species. In this presentation, recent studies of FeOB are reviewed, and then the ecophysiology of microaerophilic FeOB is discussed based on the results of my FeOB isolate.

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