

Biom mineralization Induced by Bacterial Biofilms

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Biofilms are groups of microbial cells that are encased in an extracellular matrix (ECM) composed mainly of proteins and polysaccharides. Biofilms can be beneficial, for example when protecting the roots of plants, but they are often detrimental to the host: their formation on medical devices and implants such as catheters, artificial hips, or contact lenses may lead to both acute and chronic infections. The ECM functions as an inter-cellular glue and it is also known to protect the cells from external toxins. Recently, it has been suggested that in addition to these roles, the ECM is involved in biom mineralization. Specifically, calcium carbonate crystals have been observed in soil bacteria including the Gram positive *Bacillus subtilis*. **Our study focuses on the role of the ECM in *B. subtilis* in mineralization** using SAXS/WAXS, XAS, SEM, and multiparametric AFM. Approaching bacterial biom mineralization using these methods is unique and therefore has the potential to have implications on biofilm formation in environmental (e.g. plant roots) and clinical (e.g. catheters) settings.