

STUDY REGARDING MAGNETOSPIRILLUM GRIPHYSWALDENSES BACTERIA BIOCHEMYCAL CHANGES USING FTIR AND RAMAN SPECTROSCOPY

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Spectroscopy using Fourier transform and Raman spectroscopy can be used to enlighten functional groups that belong to different biomolecules that are specific to cells (proteins, lipids, carbohydrates, nucleic acids), thus obtaining valuable information regarding bacteria's biochemical composition. Since microorganisms react very promptly to the culture medium changes, the apparition of a stress agent produces a modification of the cellular enzymatic print in order to compensate for the effect of those factors, thus the bacteria self adapting to those changes. These methods can be used to highlight the metabolically modifications in cells which respond to stress factors. The biochemical modification are important in bioremediation processes like biosorbption of metal contaminated waste water from metallurgical baths or even from irradiator pool, heavy water from nuclear power plant. The main targets are to analyze the biochemical modification appeared in presence or absence of two metals, Fe and Co. The presence of Fe is benefic for bacteria because she can absorb iron and deposit as magnetite inside the cell. The presence of Co determines changes in metabolism with the loss of many polar bindings but the growth was not inhibited even in concentration like 100 mM.