sciforum-087071: Mechanisms of Biodeterioration of Structural Materials by *Streptomyces* spp.: A Review

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Processes of microbial damage to materials lead to a number of environmental problems. Along with this, technogenic influence on the environment can contribute to the preferential development of certain eco-trophic, corrosively active groups of microorganisms, with a subsequent intensification of biodamage. To prevent their development, "green" biocides-inhibitors are being developed. Actinobacteria of the genus *Streptomyces* are actively studied from the point of view of usefulness/harmfulness in relation to human activity, in particular in processes of microbial damage to materials. To summarize the results of available scientific research and reviews devoted to the participation and supposed mechanisms of structural material damage caused by streptomycetes, the presented study was performed. It was speculated about the possible role of streptomycetes in the biodeterioration of structural materials:biofilm formation, the impact on electrochemical reactions during the corrosion process, the effect of corrosion inhibitors, and the production of various substances that can change the corrosion process. It is emphasized that the mechanisms of *Streptomyces* influence microbial damage to metals, and the consequences (intensification or weakening of corrosion) are ambiguous, species-, and strain-specific, depending on other microorganisms involved. The obtained data indicate the need for further studies on streptomycetes as participants in the corrosion process, with special attention to their production of secondary metabolites and nanoparticles of metal and metal oxides with antimicrobial and inhibitory properties, which will contribute to the expansion of the list of "green" biocides/inhibitors.