BIOFOULING
2022, VOL. 38, NO. 9, 916–925
https://doi.org/10.1080/08927014.2022.2151362

Taylor & Francis
Taylor & Francis Group

Inhibition of heterotrophic bacterial biofilm in the soil ferrosphere by *Streptomyces* spp. and *Bacillus velezensis*

Nataliia Tkachuk[a] and Liubov Zelena[b,c]

[a]Department of Biology, T.H. Shevchenko National University "Chernihiv Colehium", Chernihiv, Ukraine; [b]Department of Physiology of Industrial Microorganisms of the Danylo Zabolotny Institute of Microbiology and Virology, NAS of Ukraine, Kyiv, Ukraine; [c]Department of Biotechnology, Leather and Fur, Kyiv National University of Technologies and Design, Kyiv, Ukraine

ABSTRACT

The soil microbiome is involved in the processes of microbial corrosion, in particular, by the formation of biofilm. It has been proposed that an environmentally friendly solution to this corrosion might be through biological control. *Bacillus velezensis* NUChC C2b, *Streptomyces gardneri* ChNPU F3 and *S. canus* NUChC F2 were investigated as potentially 'green' biocides to prevent attachment to glass as a model surface and the formation of heterotrophic bacterial biofilm which participates in the corrosion process. Results showed high antagonistic and antibiofilm properties of *S. gardneri* ChNPU F3; which may be related to the formation of secondary antimicrobial metabolites by this strain. *B. velezensis* NUChC C2b and *S. gardneri* ChNPU F3 could be incorporated into green biocides – as components of antibiofilm agents that will protect material from bacterial corrosion or as agents that will prevent historical heritage damage.

ARTICLE HISTORY
Received 6 June 2022
Accepted 18 November 2022

KEYWORDS
antagonism; biofilm; *Bacillus velezensis*; *Streptomyces canus*; *Streptomyces gardneri*