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Advances and perspectives in biocleaning surfaces for graffiti removal

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The cost of biocleaning surfaces to remove graffiti is similar to that of traditional methods (chemical, mechanical and/or laser), but biocleaning has proved superior in terms of substrate integrity and respect for environmental and human safety. Bioremediation thus provides a novel approach to graffiti removal, although it is still a work in progress. Since it is not a simple matter due to the complex chemical composition of the graffiti materials.
Biocleaning assays were carried out to examine the specific applicability of each for different substrates (concrete and granite coated with silver and black graffiti spray paints) and cleaning agents (Pseudomonas stutzeri 5190, Aerobacter aerogenes 13048, and Comamonas sp. 700440 bacteria). Improvements in the methodology were thus identified with the aim of developing a suitable biocleaning protocol for stone surfaces. Certain bacteria must be grown on selective media in order to enhance their ability to degrade graffiti. A biocleaning protocol based on the use of agar and water as carrier media is thus proposed for the removal of graffiti from stone surfaces. In a novel approach, a culture medium was supplemented with powdered graffiti to facilitate and accelerate adaptation of the microorganisms to the task. Other improvements to the methodology included shortening the time the process takes. The results presented in this research study are used as the basis for proposing a biocleaning protocol to remove graffiti from real stone surfaces.