

**CONSIGLIO NAZIONALE DELLE RICERCHE
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Biotechnological potential of marine bacteria in bioremediation and biomining

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Bioremediation processes rely on organisms' ability to remove, transform, degrade, or immobilise pollutants from environmental and anthropogenic contaminated matrices. Recent research efforts focus on the bio-recovery of those elements that are both hazardous for the environment and equally precious for industrial applications, such as potentially toxic elements (PTEs) and Platinum Group Elements (PGEs) listed by the EU as critical raw materials. The use of marine bacteria in biomining is an emerging field that takes advantage of metal-microbe interaction to recover metals. With this purpose, we have identified marine bacterial strains able to: i) tolerate PTEs and more complex waste matrices; ii) remove PTEs up to 100 % iii) leach and recover PGEs; ii) create PTEs mineral precipitates through Microbial Induced Calcite Precipitation (MICP) mechanism.