

عنوان مقاله:

Effect of CaCO₃ microbiological precipitation on dune sand

محل انتشار:

کنفرانس بین المللی عمران، معماری و مدیریت توسعه شهری در ایران (سال: 1397)

تعداد صفحات اصل مقاله: 9

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خلاصه مقاله:

Microbial induced calcite precipitation (MICP) is a novel ground improvement method to increase strength and reducing the hydraulic conductivity of sand using natural biogeochemical processes. This paper aims to study the effectiveness of MICP in improving the shear strength and hydraulic conductivity of dune sand. A species of Sprosarquina group, *S. urea* was used to trigger the calcite precipitation. Sand specimens were treated using of bacterial cell and urea– calcium chloride solutions. Measured strength and stiffness values from unconfined compression tests ranged for treated samples were 527.7 kPa and 69.43 MPa, respectively, while strength and stiffness values of control specimen (untreated sand) in triaxial condition (confining pressure 50 kPa) were measured 255.7 kPa and 25.5 MPa, respectively. Permeability coefficient value of treated sample was reduced 50.5% to treated sample by falling head test.

کلمات کلیدی:

MICP, soil improvement, shear strength, hydraulic conductivity, *S. urea*

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