**Fig. S1.** EDS-mapping analysis of JH3, JH7, and HYO08 strains, depicting the location of mineralized calcium carbonate crystals. (A) Strain JH3. (B) Strain JH7. (C) Strain HYO08.
Fig. S2. Growth curves of JH3, JH7, and HYO08 strains in various ranges of pH, NaCl concentrations at 30°C, respectively. (A) Strain JH3. (B) Strain JH7. (C) Strain HYO08.
**Fig. S3.** EPS and biofilm formation were quantified using Congo red and crystal violet, respectively. Each analysis was normalized with OD$_{600}$. *E. coli* MG1655 was used as a negative control. (A) EPS quantification. (B) Biofilm formation.

**Fig. S4.** Endospore formation of each isolate is depicted in green or yellow. Vegetative cells are counter-stained in pink (Safranin). (A) Strain JH3. (B) Strain JH7. (C) Strain HYO08.

**Fig. S5.** FE-SEM analysis of soil particles and inducement of calcite minerals using HYO08. Soil particles were autoclaved prior to inoculation of strain HYO08. (A) Strain HYO08 in soil without any calcium carbonate precipitating sources. (B) Formation of aggregated strain HYO08-soil particle complex in presence of urea and calcium chloride.