

عنوان مقاله:

Microbial Induced Carbonate Precipitation (MICP) as a Select Microbial Induced Carbonate Precipitation (MICP) as a Select

محل انتشار:

پنجمین کنفرانس بین المللی نوآوری های اخیر در شیمی و مهندسی شیمی (سال: 1396)

تعداد صفحات اصل مقاله: 4

نویسندگان:

Mahdi Maleki-Kakelar - *Department of Chemical Engineering, Faculty of Engineering, University of Zanjan, Zanjan, Iran*

Sirous Ebrahimi - *Biotechnology Research Centre, Faculty of Chemical Engineering, Sahand University of Technology, Tabriz, Iran*

Farrokh Asadzadeh - *Department of Soil Science, Faculty of Agriculture, Urmia University, Urmia, Iran*

خلاصه مقاله:

Plugging of porous media by microbial induced carbonate precipitation (MICP) was evaluated in a packed column system. In order to achieve this goal, the MICP process has been separated into improving urease activity (UA) and evaluation of the precipitation induced by the bacteria in unconsolidated porous media. The UA was influenced by Ni^{2+} and Ca^{2+} . By adding $10\mu M Ni^{2+}$ and $4mM Ca^{2+}$ simultaneously in culture media, the UA was increased around 54% after 24h incubation. The MICP process was dependent on the UA of bacterial cells and, as well as concentrations of cementation solution. Experiments indicated that an increase in cementation solution (CS) concentration leads to a significant decrease in permeability of the packed column system due to formation of $CaCO_3$ crystals. Eventually multi-injections of CS at various concentrations had a significant effect on the extent of plugging, observed as a decrease in permeability of packed column. MICP appears to be a very efficient method for select plugging and consolidation of sand in oil reservoir.

کلمات کلیدی:

Microbial induced carbonate precipitation (MICP), Select plugging, Urease activity

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/739915>

