

عنوان مقاله:

Isolation and Identification of Electron Transferring Bacteria from Soil of Gold Mines (Case Study: Sistan and Baluchestan Province, Iran)

محل انتشار:

بیست دومین کنگره میکروب شناسی ایران (مجازی) (سال: 1400)

تعداد صفحات اصل مقاله: 1

نویسندگان:

Seyed Mohammad Ali Karbalaei Akrami - *Ferdowsi university of Mashhad, faculty of science, department of microbiology*

Masoume Bahreini - *Ferdowsi university of Mashhad, faculty of science, department of microbiology*

Ali Farzaneh - *Ferdowsi university of Mashhad, faculty of science, department of microbiology*

Mohammad Reza Sharif Moghaddam - *Ferdowsi university of Mashhad, faculty of science, department of microbiology*

خلاصه مقاله:

Background and Aim : Exoelectrogen bacteria (bacteria with the ability to transfer electrons through their outer membranes) that play a key role in MET (Microbial electrochemical technologies) are found in natural environments such as soil and water, but there are many other diverse bacteria in These environments disrupt the purification process of these bacteria in the culture medium in the laboratory. The aim of this study was to isolate isoelectrogen bacteria from soil to use in microbial electrolysis cells as a catalyst and to introduce a method to facilitate its purification process. **Methods :** At first, the gold mine soil of Sistan and Baluchestan province of Iran was sampled. Samples were incubated in an anaerobic reactor consisting of two electrodes and a mixture of CO₂ / N₂ gas at a ratio of ۸۰/۲۰ and with geobacter synthetic culture medium for two days. Moreover, a ۰.۴ V constant current source was connected to the electrodes. Then, for purification, the obtained bacteria were cultured on geobacter medium with ۱.۵% agar and incubated at ۲۸ °C for ۴۸ h. DNA was extracted from purified samples by phenol-chloroform method. Also, PCR test was performed with ۱۶S rRNA primer. Finally, Sequences were sent to Gen Fan Avaran Company for sequencing. **Results :** By using Sanger sequencing for ۱۶s rRNA gene and blast, the results were identified in the two-way gene database of Bacillus circulans and Pseudomonas stutzeri. **Conclusion :** The presence of an external electrode into the culture medium facilitates the purification and separation of exoelectrogen bacteria from the medium. The two bacteria, Bacillus circulans and Pseudomonas stutzeri, are exoelectrogenic that can be used in many applications, including wastewater treatment or electricity generation.

کلمات کلیدی:

.Exoelectrogen bacteria, gold mine soil, Microbial electrochemical technologies, purification, separation

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1279143>



