

عنوان مقاله:

Rhodococcus ruber KE1 augmented phytoremediation of crude oil contamination using Lolium perenne and Festuca rubra rubra

محل انتشار:

نشریه تحقیقات پیشرفته در متابولیت های میکروبی و تکنولوژی، دوره 3، شماره 1 (سال: 1399)

تعداد صفحات اصل مقاله: 18

نویسندگان:

Monire Abolhasani Sooraki - *Department of Plant Science, School of Biology, Damghan University, Damghan*,
36716-41167, Iran

.Vahid Poozesh - *Department of Plant Science, School of Biology, Damghan University, Damghan* 36716-41167, Iran

Fatemeh Salimi - *Department of Cellular and Molecular Biology, School of Biology, Damghan University, Damghan*
36716-41167 Iran

Ahmad Reza Mehrabian - *Department of Plant Sciences and Technology, Faculty of Life Sciences and Biotechnology,*
Shahid Beheshti University, GC, Tehran, Iran

خلاصه مقاله:

Phytoremediation is an eco-friendly technique for hydrocarbon bioremoval. Phytoremediation efficiency can be enhanced by cooperation of plants and crude oil degrading bacteria. This study was aimed to select crude oil tolerant grasses and clarify the bioremoval efficiency of R.ruber KE1-augmented phytoremediation. For this purpose, Resistance of Festuca rubra rubra, Festuca rubra commutate, Lolium perenne and Poa pratensis to crude oil was evaluated. Further, supportive and augmenting role of R.ruber KE1 treatment on morphological and biochemical properties of grasses and crude oil phytoremediation was assessed. According to the results Festuca rubra rubra, L. perenne were selected as more crude oil resistant grasses. R.ruber KE1 could significantly enhance their growth parameters (radicle, root and shoot length) in the presence of crude oil. The most applied concentration of crude oil (5% w/w) inhibited Festuca rubra rubra growth while R.ruber KE1 treatment improved Festuca rubra rubra growth ($p < 0.05$). Combination of R. ruber KE1 with L. perenne or Festuca rubra rubra resulted in higher degradation rate of >70% in all applied concentration of crude oil after 40 days. R. ruber KE1 treatment enhanced biodegrading of insoluble (36%→1.82%) and soluble (53.86%→14.52%) compounds of crude oil. R.ruber KE1-augmented phytoremediation can be promising approach to degrade recalcitrant hydrocarbon pollutants and remediate contaminated soils

کلمات کلیدی:

Bioremediation, Crude oil, Festuca rubra rubra, Lolium perenne, R.ruber KE1

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1419480>



