عنوان مقاله:

Responses of selected plants to petroleum contamination during phytoremediation

محل انتشار:

اولین همایش تخصصی مهندسی محیط زیست (سال: 1385)

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خلاصه مقاله:

Difference in the ability of various plant species to germinate and grow in contaminated soils should be better explored in order to choose the most appropriate plant species in the development of any phytoremediation process. In this study, germination and subsequent growth of seven plants including tall fescue (Festuca arundiacea), Agropyron smithi, Puccenillia distance, white clover (Trifolium repens), canola (Brassica napus), safflower (Carthamus tinctorius) and sunflower (Heliantus annus) were tested in soils with three petroleum contamination levels. Presence of Total Petroleum Hydrocarbons (TPHs) in the soil had no effect on seed germination of agropyron, white clover, sunflower and safflower, although canola and white clover seedlings were sensitive to these compounds and failed to produce dry yield matter at the end of trial period. In contrast, seed germination of canola, puccenillia and tall fescue were decreased in the contaminated soils. No reduction was found in dry weight of puccenillia in contaminated soils (C1 and C2) compared to control, however, the presence of TPHs proportional to the contamination level, decreased dry weight of sunflower and safflower. The results showed that plant genotypes studied here significantly varied in seed germination in petroleum contaminated soils although germination did not predict the plant genotypes differences in subsequent growth. It indicates that germination testing alone does not provide a short cut to assessing the suitability of plant species for subsequent testing in field trials.

کلمات کلیدی:

Phytoremediation, Germination, growth, Total Petroleum Hydrocarbons (TPH).