شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأفلام بعيدا عن الغبار

في درجة حرارة من ١٥-٢٥ مئوية ورطوبة نسبية من ٢٠-٤٠%

To be Kept away from Dust in Dry Cool place of 15-25- c and relative humidity 20-40%

بعض الوثائق الاصلية تالفة

بالرسالة صفحات لم ترد بالاصل

CONTAMINATION OF NEW DESERT LANDS NEAR PETROLEUM WELLS AT RAS-SUDR

BY

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B.Sc. in Agriculture (Soil Science),

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Thesis

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ABSTRACT

Sandy soil samples from Ras-Sudr area (South Sinai), Egypt were collected at 50, 200, and 800 meters from petroleum well site to investigate the hazardous effects of petroleum constituents. Pot experiment was conducted using wheat and corn plants as bioindicators in oil polluted soils at rates of 1.5, 3.0 and 4.5%. Two different remedies, agrolic and bentonite, were used at the rate of 6% to reduce the risk to toxic petroleum products in soils.

Crude oil represents a complex mixture of both inorganic and organic components. Total petroleum hydrocarbons (TPH) represent 82.82 % of the crude oil. Fe and Mn are present in largest concentrations while Cd and Cu are found in low concentrations.

Heavy metals concentrations and TPH showed a horizontal distribution with tendency to decrease with increasing the distance from oil well. Cd showed the largest variation with distance while Mn and Fe showed the smallest variation. With regard to TPH content soils located in the vicinity of oil well (50 and 200 m distance) are heavily polluted (> 200 $\mu g\ g^{-1}$) and soils at 800 m from oil well are moderately polluted (50-200 $\mu g\ g^{-1}$).

Contamination of oil significantly reduced plant growth parameters, i.e. germination, seedlings shoot length and dry matter biomass of both wheat and corn. The reduction was more pronounced when plants grown at zero time of contamination compared with that grown 30 days after contamination. Heavy metals concentrations in oil polluted soils increased with increasing level of pollution. The concentrations of heavy metals in soil as well as in corn and wheat plants significantly increased with increasing oil pollution after contamination.

Application of bentonite or agrolic at rate of 6% significantly decreased Cd, Pb, Cu, Zn, Mn and Fe concentrations in the oil polluted soils. The decrease was about 13-27 % with agrolic and 23-32% with bentonite. TPH decreased by about 40-44 % and 18-22 % in oil polluted soil supplemented with bentonite and agrolic, respectively.

Application of bentonite or agrolic as reclamative remedies significantly increase the growth parameters, i.e. germination percentage, plant height and dry matter of both corn and wheat. On the other hand they significantly decrease the concentrations of heavy metals in both plants. Bentonite showed a relatively higher effect compared to agrolic.

Key words:

Sandy soil-crude oil – oil polluted soils – pollution-heavy metals - petroleum hydrocarbons-remediation – Agrolic-bentonite – bioindicators – wheat- corn.

Thanks to GOD.

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