

الآية

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سورة الرحمن الآيات (١-٤)

Dedication

To my dear mother, Father

Sister, Brothers,

Husband and Children

Acknowledgement

First of all, my thanks to almighty Allah, forgiving me the strength and patience to conduct this study.

I would like to express my gratitude to my supervisor Prof. Humodi Ahmed Saeed, for his keen supervision, generous help, advice and guidance throughout this study.

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Finally, my love and thanks go to all members of my family.

Abstract

This study was conducted to isolate biosurfactant producing bacteria. Samples of crude oil and soil contaminated with hydrocarbons were collected from oil wells in Paleela Oil Field, South Kordufan, and from Adar, Northern Upper Nile state. Seven strains were isolated. These showed rich growth on nutrient agar medium. The isolated strains were identified by morphological feature and biochemical tests. The isolates were found belong to different genera of bacteria including: *Bacillus*, *Pseudomonas* and *micrococcus*. Only two strains named *Bacillus subtilis* and *Pseudomonas aeruginosa*, produced biosurfactant. To confirm the ability of isolates in biosurfactant production, haemolysis test, emulsification test, oil displacement test and drop collapsing test were conducted. These findings indicate that the biosurfactant produced by the isolates could be useful for bioremediation application. Further studies are needed to validate the result of the present study.

المستخلص

أجريت هذه الدراسة لعزل البكتيريا المنتجة للمواد المخفضة للتوتر السطحي، جمعت العينات من النفط الخام والتربة الملوثة بالمواد الهيدروكربونية من آبار النفط في حقل بليلة الذي يقع في جنوب كردفان ومن عدار الذي يقع في شمال منطقة أعالي النيل، وقد تم عزل سبعة سلالات . وقد اظهرت النمو الغني في وسط الاجار المغذى. تم التعرف على السلالات المعزولة باختبارات المورفولوجية والكيميائية الحيوية حيث وجدت تنتمي إلى أجناس مختلفة من البكتيريا العصوية، الزائفة والمكورات الرقيقة . فقط سلالتين من العصوية الرقيقة والزائفة الزنجارية أنتجت المواد المخفضة للتوتر السطحي. للتأكد من قدرة البكتيريا المعزولة على إنتاج المواد المخفضة للتوتر السطح أجريت بعض الاختبارات وهي التحليل الدموي ، اختبار الاستحلاب ، واختبار ازاحة النفط وتجربة هبوط الانهيار. هذه النتائج تشير الى أن المواد المخفضة للتوتر السطحي التي تنتجها البكتيريا المعزولة يمكن أن تكون مفيدة لتطبيق المعالجة البيولوجية. وهناك حاجة الى المزيد من الدراسات للتحقق من صحة نتائج الدراسة الحالية.

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List of Abbreviations

NO	Abbreviations	Means
1	ADH	Arginine Dihydrolase
2	API 20 E	Analytical Profile Index.
3	C°	Centigrade
4	CIT	Citrate utilization
5	cm ²	centimeter squared
6	GEL	Gelatinase
7	HCL	Hydrochloric acid
8	H ₂ S	Hydrogen sulfide
9	H ₂ SO ₄	Sulfuric acid
10	L	Liter
11	LDC	Lysine Decarboxylase
12	Na Cl	Sodium Chloride
13	μl	Microliter
14	ml	MI liter
15	mm	MI meter
16	ODC	Ornithine Decarboxylase
17	PH	Potential of hydrogen
18	rpm	Round per minutes
19	TLC	Thin layer chromatography
20	URE	Urease
21	VP	VogesProskauer