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ABSTRACT BOOK



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STUDY OF POTENTIAL OF OIL DEGRADATION BY MICROORGANISMS ISOLATED FROM THE CASPIAN SEA REGION

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Backgrounds

The basis of biotechnological purification of the environment from oil and petroleum products are biological products containing viable cells of hydrocarbon oxidizing microorganisms. The problem of creating effective and accessible microbial consortia to eliminate dangerous oil pollution is very relevant.

Objectives

We have studied the growth activity and biodegradation of petroleum hydrocarbons of local deposits by microorganisms-destroyers allocated in the Caspian region.

Methods

Methods: fluorimetric method for determining of oil concentration, emulsification index was determined by Rosenberg method, BATH-test to determine the hydrophobicity of the cell wall, gravimetric and nephelometric methods for determining the growth of microorganisms on the 1 and 3% oil.

Conclusions

Based on the active growth of microorganisms on solid and fluid medium containing 1% oil (as a sole carbon source) were selected 57 cultures, which were measured for biomass growth, cell wall hydrophobicity, emulsification index and the percentage of oil degradation. We have selected cultures for which the percentage of oil degradation ranged from $91,1 \pm 4,5$; to $49,7 \pm 3,5$, emulsification index values ranged from 52.7% to 43.9%, the hydrophobicity growth varied from 46.1% to 6.7%, biomass was increased (in 10 days) from 200% and 3000%. Selected cultures after identification were assigned to the following genera: *Achromobacter*, *Ochrobactrum*, *Stenotrophomonas*, *Roseomonas*, *Rhodococcus*, *Sphingobacterim*. These organisms have a high potential of hydrocarbons degradation, comparable to the activity of the commercial product BK-Oil Buster, they are not antagonists to each other and can be used to create on their basis the consortiums for their further use in bioremediation.