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## Active associations of hydrocarbon-oxidizing microorganisms to intensify the process of the Caspian Sea water purification from oil pollution

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Characteristic of the offshore oil production is an increased probability of leakage. Every year from 2 to 10 million tons of oil for various reasons enters the World's ocean. One of the promising methods for purification of aquatic ecosystems is to develop preparations based on microorganisms-oil destructors. From water and bottom sediments of the Caspian Sea more than 60 cultures of oxidizing microorganisms were isolated. From them 12 most active strains were selected. These strains when cultivated on a liquid mineral medium with 5% oil content of various oil deposits in the Caspian region utilized it by 70-90% within 10 days. Molecular genetic analyzing and sequencing nucleotide sequence from fragments of 16S RNA demonstrated that these strains belong to the genera *Dietzia*, *Rhodococcus*, *Pseudomonas*, *Tetrathiobacter*. On the basis of the selected strains associations of oil-oxidizing microorganisms have been developed. Their activity during the growth was studied on hydrocarbon mineral medium, artificial and natural sea water of the Caspian Sea with 10% oil content. Natural oil decline in a mineral medium was 26.9%. Adding associations has resulted in increased degree of degradation by 23.3-62.1%. Four high active associations degraded more than 80% of the oil. When grown in the artificial sea water and natural Caspian Sea water, the decline of oil came to 75-78%.

### Biography

Amankeldi Sadanov is the Director of the Institute of microbiology and virology. He has completed his PhD in 1984 and postdoctoral studies in 1993. He has published more than 400 papers, and is the author of 55 patents. His scientific interests are following: ecology of microorganisms, bioremediation of oil-polluted ecosystems, soil and agricultural microbiology.

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