

## BIOTECHNOLOGICAL METHODS OF BIODEGRADATION OF PETROLEUM

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**Introduction.** Before mankind the largest problem of destruction of natural ecosystems under the influence of the biosphere contamination with crude petroleum and products of its processing emerged. The reasons for this are: a large number of accidents involving trucks carrying oil and oil products; reset enterprises uncleaned waters containing petroleum products. Currently, the biotechnology that has made a big step in the biodestruction drugs development can help to alleviate problems with spills.

**Aim.** To study the range of hydrocarbons biodestructors products available on the market of Ukraine. To examine microbial structure and transforming potential of the biosorbent "Ekolan - M".

**Results and discussion.** The range of biologics destructors in Ukraine at the moment is quite large. It includes biological preparations "Ekolan - M"; "Econadin"; "Ultracet"; "Hydrocarbon treat granular"; "Desna"; "Lestan".

We chose the biosorbent – "Ekolan - M", developed by the D.K. Zabolotny Institute of Microbiology and Virology of the NASU. Its sorption capacity is 6-8 kg of hydrocarbons/kg, the ability to retain oil is around 99%. State sanitary - epidemiological examination showed that the preparation meets all the requirements of the current sanitary legislation of Ukraine, has medical and hygienic, toxicological and ecological contraindications. This does not require recycling from the application site after use. The sorbent is able to detoxify a fairly wide range of hydrocarbons: crude petroleum, fuel oil, mineral oil, diesel and aviation fuel, gasoline, kerosene and other petroleum products. The final products of disintegration are environmentally neutral compounds. The selected biosorbent is the most effective and safest of all available biological preparations in Ukraine. The ability to degrade petroleum products bacteria of the species *Acinetobacter calcoaceticus*, *Rhodococcus erythropolis*, *Nocardia vaccinii* have. They are cultured on mineral nutrient media with hydrocarbons.

**Conclusions.** At the Department of biotechnology in The National University of Pharmacy we conduct research in biotechnology of microbial composition, the optimal methods for biological preparation microorganisms growing. The sorbent "Ekolan - M" effectiveness against various types of hydrocarbon pollutants is being studied. It is possible to apply the results obtained in order to improve the technology of hydrocarbon xenobiotics biodegradation.