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Biodiversity of Plants Rhizosphere and Rhizoplane Bacteria in the Presence of Petroleum Hydrocarbons

Authors: Togzhan D. Mukasheva, Anel A. Omirbekova, Raikhan S. Sydykbekova, Ramza Zh. Berzhanova, Lyudmila V. Ignatova Abstract: Following plants-barley (Hordeum sativum), alfalfa (Medicago sativa), grass mixture (red fescue-75%, long-term ryegrass - 20% Kentucky bluegrass - 10%), oilseed rape (Brassica napus biennis), resistant to growth in the contaminated soil with oil content of 15.8 g / kg 25.9 g / kg soil were used. Analysis of the population showed that the oil pollution reduces the number of bacteria in the rhizosphere and rhizoplane of plants and enhances the amount of spore-forming bacteria and saprotrophic micromycetes. It was shown that regardless of the plant, dominance of Pseudomonas and Bacillus genera bacteria was typical for the rhizosphere and rhizoplane of plants. The frequency of bacteria of these genera was more than 60%. Oil pollution changes the ratio of occurrence of various types of bacteria in the rhizosphere and rhizoplane of plants. Besides the Pseudomonas and Bacillus genera, in the presence of hydrocarbons in the root zone of plants dominant and most typical were the representatives of the Mycobacterium and Rhodococcus genera. Together the number was between 62% to 72%.

Keywords: pollution, root system, micromycetes, identification

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