of the most phylogenetically informative loci, the intergenic locus B (bloc) for 112 Beauveria isolates originating from a wide latitudinal (from Caucasus to Kamchatka) and longitudinal scale (from Yakutia to southern Tian Shan) of Eurasia. Two taxa at the species level were revealed: *Beauveria bassiana* (39 isolates) associated mainly with steppe and forest steppe zones and *Beauveria pseudobassiana* (73 isolates) associated with forest zones. *B. bassiana* isolates were mainly recovered from Coleoptera and Lepidoptera. In *B. pseudobassiana*, the range of primary hosts was remarkably wider and included Coleoptera, Lepidoptera, Hemiptera, Hymenoptera and Diptera. On the other hand, heat tolerance and virulence of *B. bassiana* isolates were significantly higher as compared to *B. pseudobassiana*. Thus the strains belonging to the former species are more likely to be used for pest control, especially in arid areas, and the molecular marker used is essential for rapid species identification during screening and selection of fungal strains for microbial formulations production. Supported by grants from Kazakhstan MES RK # 055 and RF President # MK-1175.2013.4.

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Isolation of IAA-producing yeasts from soil under Alfaalfa (*Medicago sativa*) in Kazakhstan

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Yeasts were isolated from soil under alfalfa (*Medicago sativa*) from agricultural field located in Almaty region of Kazakhstan. Yeasts assigned to the Aureobasidium, Rhodotorula, Metschnikowia, Saccharomyces, Cryptococcus, Lipomyces genera. In yeast community pigmented yeast *Rhodotorula mucilaginosa*, *Aureobasidium pullulans* were dominant. *Saccharomyces cerevisiae*, *Metschnikowia pulcherrima* were typical, the frequency of their occurrence ranged from 39% to 54%. The frequency of occurrence of *Cryptococcus diffluens*, *Cryptococcus albidus*, *Lipomyces tetrasporus* species not exceed 17%, they were assigned to rare. The ability of yeasts to produce auxin was studied. 17 strains producing indole-3-acetic acid (IAA) in the amount of 8.6–91.5 μg/ml were selected. The dependence of IAA production from aeration and tryptophan concentration in the medium (50, 200 and 400 μg/ml) was revealed. Growing yeasts with shaking provided a more intense accumulation of auxin in the culture medium compared with cultivation in stationary conditions. Stimulating effect of tryptophan was in a concentration of 50 μg/ml. Increasing the concentration of tryptophan to 200 μg/ml enhanced the IAA production in 2.3–4.8 times. After further increasing of tryptophan concentration (400 μg/ml) IAA accumulation in the medium increased on 6–34% depending on the strain. *Aureobasidium pullulans* P5 and *Rhodotorula mucilaginosa* R12 were the most active strains.

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Crude oil polluted soils phytoremediation with native grass

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Phytoremediation of soil contaminated with petroleum products is a technology that can restore of damaged soil. The use of recyclable materials such as stabilized municipal sludge stimulates the plant growth on crude oil polluted land is a simple joint sustainable waste management. Besides the nutrient deficient polluted soils, sewage sludge brings biocenosis to improve the destroyed soil bacterial community. To identify plant species that increase the degree of remediation of polluted soils with 6.4% total petroleum hydrocarbons two species of native wild plants *Hordeum murinum* and *Cynodon dactylon* have been investigated. Polluted soil treatment was performed with 25 t/ha stabilized sewage sludge in the absence/presence of 2 t/ha indigenous volcanic tuff. The implication of the finding of the vegetable cover studies is that 120 days growth of plants can lead to cleanup of crude oil polluted and fertilized soils and reduction of pollution level at 20 cm depth with 55% for *Hordeum* spp. and with 65% for *Cynodon* spp. Addition of tuff mixed with sewage sludge increased reduction of crude oil to 60% for *Hordeum* spp. and 76% for *Cynodon* spp. The tolerance and adaptability of plants in polluted soil makes each of these species a tool for the remediation-polluted soils.

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Dose-dependent cytotoxic effects of flame retardant tris(1,3-dichloro-2-propyl) phosphate on HeLa cell lines

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In order to satisfy strict flammability standards, flame retardant (FR) additives are applied to a wide range of materials to slow the combustion process. The use of certain FRs has been restricted due to concerns about their toxicity, persistence in the environment, and potential to bioaccumulate in food chains. tris(1,3-dichloro-2-propyl) phosphate (TDCPP) belongs to a group of triester organophosphate FRs (OPFRs). To date little investigated about their effect on human health. The aim of the present work was to study the potential cytotoxic effect of TDCPP on HeLa cells. The dose-dependence and time-dependence of the effect was assessed by exposing the cells to increasing concentrations (0.01–100 μM) of TDCPP for 24, 48,72 h. Cell viability, assessed by tripan blue exclusion test, cell survival/proliferation assessed by MTT test, and the activity of the Na+-K+-ATPase pump, were analyzed. TDCPP inhibited the growth of HeLa cells with IC50 values of 52 ± 5.5 μM at 24 h and 39 ± 4.64 μM at 48 h. A corresponding inhibition of the Na+-K+-ATPase in a dose-dependent manner was observed