

effective microorganisms for decontamination from polluted soils, multiplying and reintroduction in soils affected greatly assist the remediation process. The results suggested complementary studies for separation and detection of effective microorganisms of polluted soils.

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### Antimicrobial activity of *Humulus lupulus* extract



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The research on naturally occurring substances presenting antimicrobial properties has intensified in the last decades due to legal regulations and also to the consumers demand that request to reduce the quantities of chemical products used on horticultural crops. In this paper was investigated the inhibitory activity of *Humulus lupulus* L. (hops) extract against some plant pathogens, represented by: *Alternaria* spp, *Pythium debarianum* and *Phytophthora infestans*. The plant extract was obtained by cold percolation from dried and minced female inflorescences. The poisoned food technique was used for antimicrobial activity evaluation, by using a concentration of 2%, 4% and 8% of the extract in the growth medium. Although the response of the tested fungi to each concentration was different over the control, generally growth inhibition increased with the concentration, on the tested range. The in vitro studies revealed that the concentration of 8% hops extract showed fungitoxic activity against all the strains tested.

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### Expansion of the use of natural reeds (*Phragmites australis*) in the delta river Ili



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Due to the sharp decline of state support for the agricultural sector in many regions of Kazakhstan, including the delta river Ili, there was a sharp recession of production, increased pressure on natural ecosystems as the result of poaching, uncontrolled haymaking, private fires, deforestation. Therefore is necessary search of economic

solutions to ensure maximum preservation of natural ecosystems in compliance with the requirement to reduce the load to the environment. One of the most promising options of land use in the delta Ili ensuring sustainable preservation of the environment is use of the reed, which stocks in 2010 was 338,400 ha; with an average yield about 200 centner/ha. In this region the reed (*Phragmites australis*) has the highest potential growth for seasonal phytomass, and we can use it as the fuel granules and as the feeding briquettes with the minimal expenses for manufacturing of raw material. Planned to purchase of special equipment to manufacturing the reed granules and briquettes. The reed certainly applies to renewable energy and its efficient use can provide a saving coal, as well as promote conservation saksaul forest which traditionally used by local people as fuel.

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### Influence of unsymmetrical dimethylhydrazine and nitrosodimethylamine to growth indicators of the wheat



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UDMH (in 0.1 N HCl) and NDMA in concentrations –  $10^{-6}$  M,  $10^{-5}$  M,  $10^{-4}$  M,  $10^{-3}$  M were taken for research. The seeds of the wheat varieties Omsk-9 were germinated in solutions of the test substances in the dark at a temperature of 22–240 °C. The results of research showed braking of germination of grains when exposed to large concentrations of the test substances. Inasmuch as UDMH ( $10^{-3}$  M) reduces the degree of germination of the wheat on 15%, while at the same NDMA concentrations causes complete braking of germination of the grain. It should be noted that UDMH not very affect to the neoplasm of the roots, however NDMA exert an inhibitory effect. The degree of braking of root growth depends on the concentration substance. Thus, in the processing with solutions of  $10^{-5}$  M,  $10^{-6}$  M UDMH new roots appeared on 20–32% and at high concentrations on 16–18% less. It should be noted that the root formations is amplified to the level of control when moving plants all of the options into water and the growth in length is reversed only partially. Also, the dependence of growth of the aerial parts of the concentration of hydrazine was investigated. NDMA as compared with UDMH more strongly inhibits growth.

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