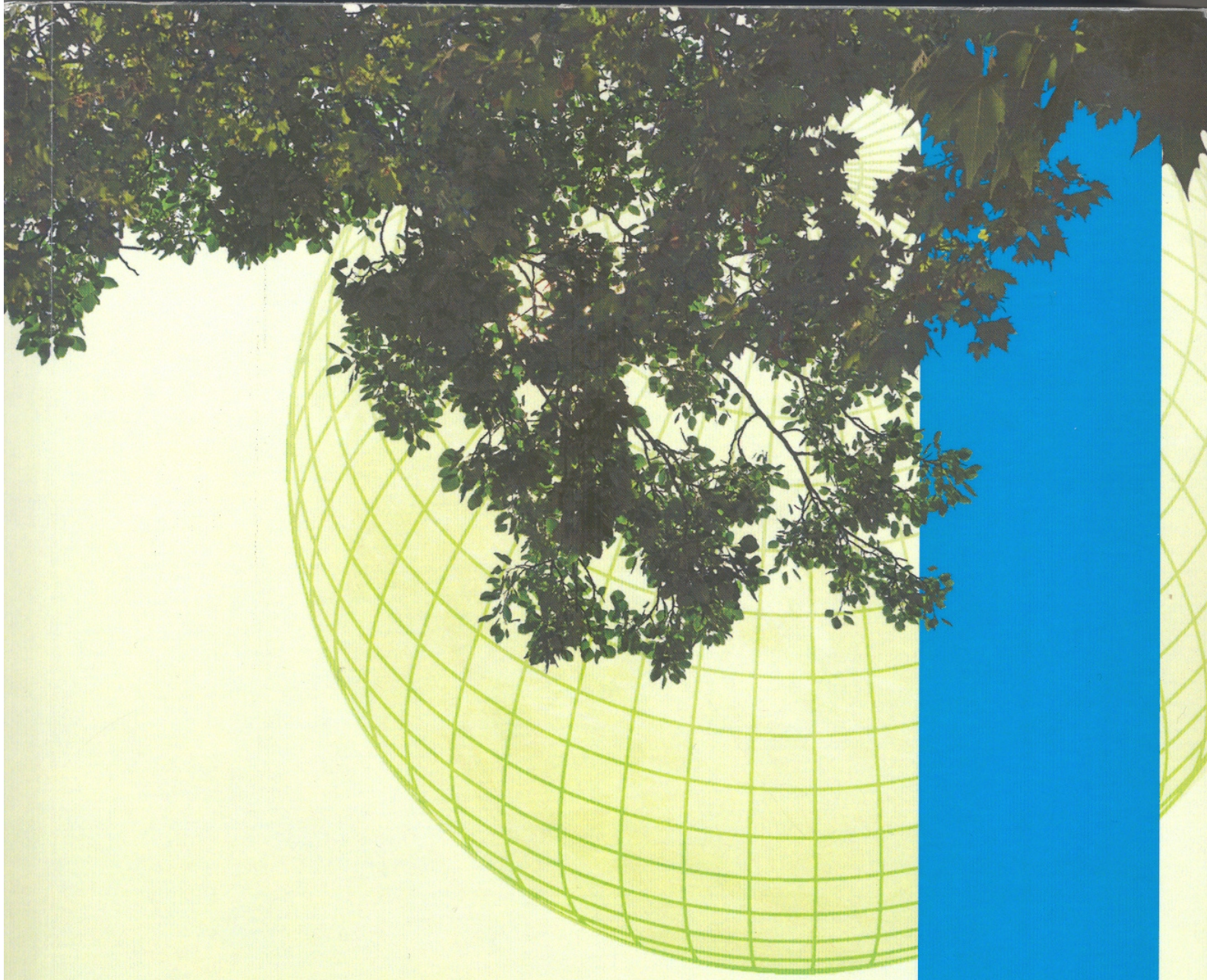

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BOOK OF ABSTRACTS

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THE INDUCED PHYTOREMEDIATION OF ORGANOCHLORIDE PESTICIDES-POLLUTED SOILS USING DERIVATIVE AND COMPOSITION OF OKSAN

A. Nurzhanova[1], S. Kalugin[2], R. Baizhumanova[2], Ch. Seisenbai[1], Y. Sailaukhanuly
[1] Institute of Plant Biology and Biotechnology, 45Timiryezev st., 050040, Almaty, Kazakhstan
[2] al-Farabi Kazakh National University, Almaty, Kazakhstan
Corresponding author email: gen_asil@mail.ru

ABSTRACT

Phytoremediation is technology of restoration of polluted soil and water by using different plant species. Phytoremediation technology is applied directly in the area of contamination (*in situ*), helping to reduce costs and reduce exposure contaminated pollutant with the people and the environment. Most importantly, after phytoremediation soil does not lose its fertility. Consequently, this technology is ecologically safe and cost effective.

Exigency to develop phytoremediation technology of soils contaminated by pesticides arose from the fact that Kazakhstan as "environmental heritage" from the now defunct Soviet Union got many territories of the former storehouses of obsolete pesticides and surrounding land. In each region of the country, there are 5-20 the inactive former warehouses of pesticides. Soil around the warehouses has multicomponent pollution. Soil contains organochlorine pesticides and heavy metals.

Most important components of technology restoration of soil polluted with organochlorine pesticides with plants are phytoextraction and phytostabilization. Phytoextraction potential of the plant organism depends from the hydrophobicity of the pollutant. Degree of hydrophobicity (log Kow) largely determines the efficiency of absorption pollutants and their movements in the plants.

Low phytoextraction percentage promotes slow growth of plants and limited biomass production. The efficiency of phytoremediation of soil depends from the productivity of plants: t than larger biomass, consequently the higher accumulation of pesticides. In this regard, for increasing the phytomass of tolerable plants to pesticides and bioavailability of the pollutants from the contaminated soil to plant were used the new synthesized growth stimulator (derivatives of the oksan 2, 2-thiosemicarbazone dimetiltetragidropiran-4-one) and his compositions.

In the green and field was studied introducing derivatives of the oksane (SC in concentration 0,0001%) and their compositions (the wood charcoal 250 g + SC in concentration 0,0001%) in contaminated soil in period of germination on the physiological parameters of the plants (*Xanthium sturmarium, Amaranthu retroflexus and Cucurbita pepo*).

In green was found that the introduction of SC and their compositions in artificially polluted by pesticide (4.4' DDE metabolites in concentration 878±77μg kg^{-1}) soil increased biomass to 2-4 times, rise the content of chlorophylls and carotenoids in the leaves, changing the ratio of chlorophylls *a and b*, and the chlorophylls and carotenoids, the coefficient of biological absorption, translocation coefficient and promote reduction of pesticides in soil as compared with control by 18%.

In field the introduction of SC and their compositions in soil polluted with pesticides (4.4 'DDT and 4.4' DDE metabolites in concentration 1426±241μg kg^{-1}) increased biomass plants and phytoextraction pesticides from soil to plant from 0.4% to 1.6% of pesticides from the square m^2.

This work can be required for the development of pesticide remediation technologies for organchloride pesticides-contaminated sites.