

Air, Water and Soil Pollution Science and Technology

Contaminated

Soils

Sources, Properties
and Impacts

Michaela Dunn
Editor

NOVA

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Chapter 3

**INVESTIGATION OF THE GENETIC POTENTIAL OF
THE WINTER WHEAT RESISTANCE TO HEAVY
METALS IN CONTAMINATED SOILS FOR
THE DEVELOPMENT OF
CLEAN GROWING TECHNOLOGY**

R. A. Alybayeva**, *S. D. Atabayeva* and *S. Sh. Asrandina†

Department of Biology and Biotechnology

Kazakh National University named after al-Farabi, Ministry of Education and Sciences,
Almaty, Republic of Kazakhstan

ABSTRACT

In Kazakhstan, the development of a powerful industry was based on its rich natural resources. However, the industrial centers are the areas of highest contamination by heavy metals. Sound environmental technologies are crucial to address heavy metal pollution problem. Development and use of plant varieties, characterized by minimal accumulation of heavy metals, can provide such environmental solution. The aim of this study was to identify wheat germplasm resistant to heavy metals (lead, copper, zinc and cadmium), which are priority pollutants in eastern Kazakhstan region, and identification of donors for breeding and promising forms of wheat that are resistance to heavy metals and destined for agricultural production. Different genotypes of winter wheat (Kazakh, Russian, a collection of CIMMYT cultivars and lines of winter wheat, wild species of wheat) were studied. Plants were grown on scientific test site, under natural environmental pollution, in the suburban area of Ust-Kamenogorsk city, East Kazakhstan region. The content of heavy metals in plants was determined by atomic absorption on the device AAnalyst 300 of "Perkin Elmer". Experiments and determination of physiological parameters were conducted by the method of field experiment. The study

* raya_aa@mail.ru.

† Corresponding Author address - Department of Biology and Biotechnology Kazakh National University named after al-Farabi, Ministry of Education and Sciences Almaty, Republic of Kazakhstan. Email: sauleat@yandex.kz, asaltanat@yandex.ru.

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