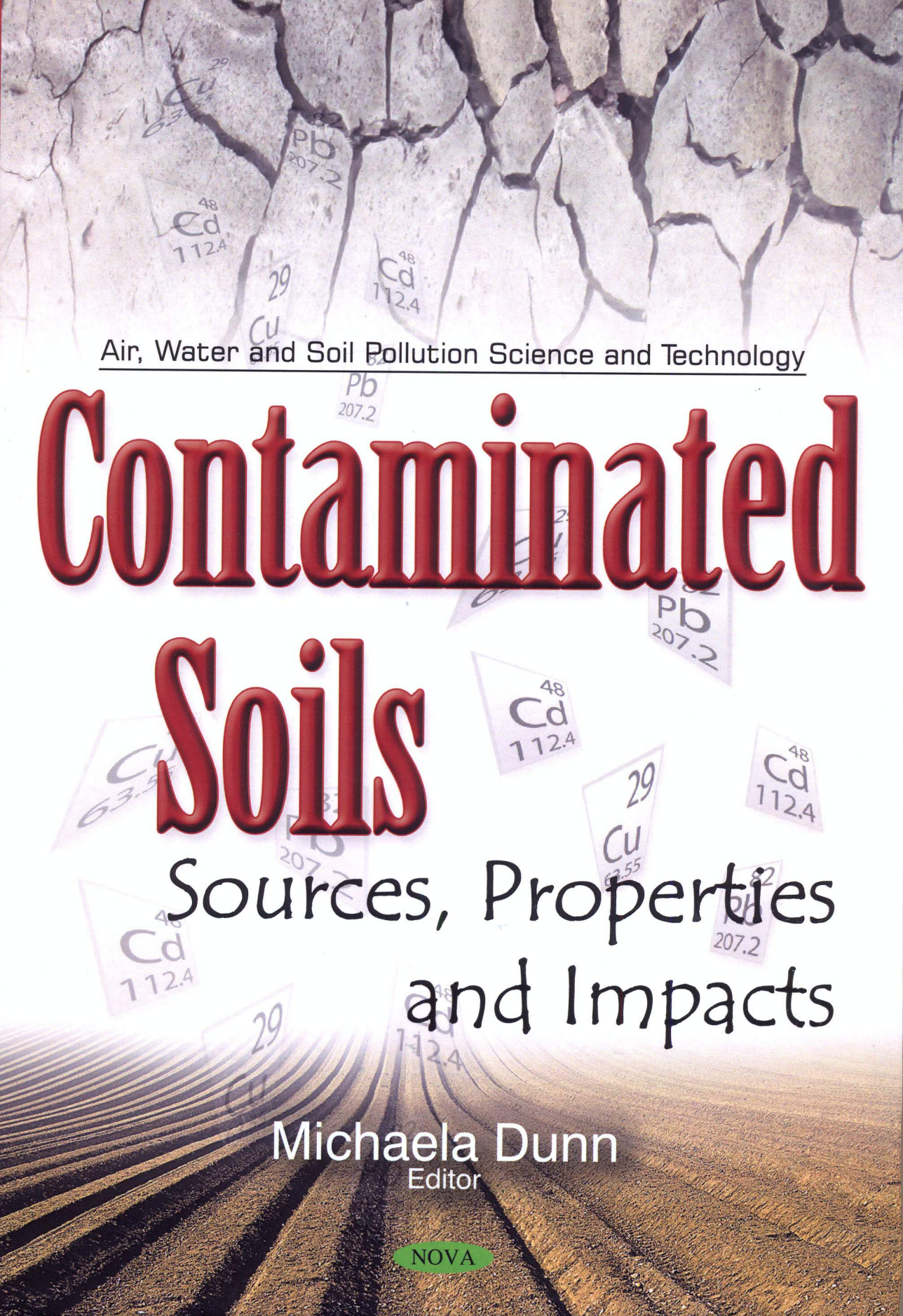
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Chapter 3

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

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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

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