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ABSTRACT BOOK



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WHEAT ASSESSMENT ON THE CONTENT OF Zn^{2+} , Cu^{2+} , Cd^{2+} METALS

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Various vegetations on terms genetic resources for carrying out preliminary selection on the general adaptability (GA) of cereals significantly accelerate breeding process. Metal resistance of initial forms is an important component of GA cereals in the conditions of anthropogenic pollution, as in Kazakhstan, and all over the world. The breeding wheat materials including winter, spring forms and facultative wheat in different ecological conditions on experimental sites of Kazakh Scientific Research Institute Agriculture and Plant Growing. Laboratory researches on influence of ions of Zn^{2+} , Cu^{2+} , Cd^{2+} of metals (20 mg/l in a nutrient medium) on changes of physiological & biometric parameters growing of 7 day sprouts of wheat were carried out in 2010-2013. Comparison of metal resistance of plants carried out on the basis of Wilkins coefficient calculation. It was found that cereals resistance to the action of Zn^{2+} , Cu^{2+} , Cd^{2+} metal depends on the content them in grain, the growth conditions (irrigation and rainfield), a varietal and genotypic specificity. A number of stability of cultivars of winter wheat to studied metals is constructed: Cu^{2+} : Progress (0,88) > Bogarnaja 56 (0, 66) > Bezostaja 1 (0, 64); Zn^{2+} : Bogarnaja 56 (1,16) > Progress (0,95) > Bezostaja 1 (0, 83); Cd^{2+} : Progress (0,97) > Bogarnaja 56 (0,85) > Bezostaja 1 (0,82); It is established that ions of Cu^{2+} and Cd^{2+} render stronger inhibiting effect for growing of roots and vegetative mass of all studied versions of wheat. The Wilkins coefficient was higher for facultative wheat in winter crops in comparison with spring at cultivars "Ruta" and "Kazahstanskaya 10". Wheat cultivars Kazahstanskaya 10, grown up without irrigation, had at laboratory conditions a higher level of resistance to metals in comparison with the seed which has been grown up on an irrigation. Facultative wheat showed higher level of resilience to a metal stress, in comparison with winter and spring forms that testifies to their considerable potential for studying of GA and the subsequent involvement in crossings. As a whole the assessment of a wheaten variety on metal resistance will allow to reveal valuable initial forms for pre-breeding and breeding on GA.