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**ABSTRACT BOOK**



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## FREE PROLINE FOR CEREALS BREEDING ON THE GENERAL ADAPTABILITY

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The physiological and biochemical mechanisms of cereals metal resistance of among which considerable interest is represented by researches on change of level of a free proline is actual. As objects of research 27 varieties of a winter, spring and facultative wheat registered and perspective in Central Asia. For a germination of 7-day sprouts of wheat put experience with addition in nutritious solution of the HM various salts in concentration of 20 mg/l. Determination of free proline was performed by the method of Bates. It is established on a big selection material of change of biometric parameters and level of this amino acid at wheat under the influence of TM most widespread in Kazakhstan ( $Cd^{2+}$ ,  $Cu^{2+}$ ,  $Zn^{2+}$ ). TM stimulates accumulation of the proline in leaves of sprouts of all studied wheat varieties against inhibition of growth processes. Activation of exchange processes connected with increase of level of free proline under the influence of a metal stress a number of varieties, including Bogarnaja 56 differed. High level of free proline was observed at action of ions of  $Cd^{2+}$ . It is proved that  $Cd^{2+}$  ions are the strongest toxicants in comparison with  $Zn^{2+}$  that involves activation of cellular mechanisms a stress stability. It is connected with substantial increase of the maintenance of the amino acid in comparison with control: Bogarnaja 56 for 158,3 %, Bezostaja 1 for 136 %. At a variety Progress level of free proline at operation of  $Cd^{2+}$  was twice higher in comparison with reaction to  $Cu^{2+}$ . On accumulation of the amino acid accurate regularity in extent of reaction of wheat varieties on HM action was determined:  $Cu^{2+} < Zn^{2+} < Cd^{2+}$ . Faculty wheat differed high the maintenance of proline in control that is caused by resilience to their extreme factors of the environment, so the increased adaptive potential. Under the influence of HM there was a considerable accumulation of this amino acid at varieties Intensivnaja and Pamjat' 47 in winter form, especially under the influence of  $Cu^{2+}$  and  $Cd^{2+}$ . Summer forms of faculty wheat reacted increase of free proline level, especially at  $Cu^{2+}$  action. For example, the summer form of a variety Intensivnaja was characterized by four multiple excess of proline. The made experiments show the role of proline as endogenous regulator a stress stability in reaction to TM action. Researches on use of free proline as a sign for pre-breeding and definition of genotypes - donors of metal stability of wheat are expedient.