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The nature of changes in biometric indices and the activity of oxidant enzymes of seedlings after the complex effect of physical factors and synthetic growth regulators on barley seeds of ordinary (*Hordeum vulgare*)

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Abstract

This article is directed to a research of influence of preseeding processing of seeds by a complex of physical and chemical methods on biological and biochemical parameters of sprouts of barley of ordinary (Hordeum vulgare). The purpose of preseeding processing – release of sowing material from causative agents of diseases, increase in viability of seeds and acceleration of their germination. Long-term theoretical and pilot studies showed that the nucleus can be brought out of a condition of biological rest, influencing seeds before crops by factors, various by the nature.

In the present article we investigated and studied complex influence chemical (a humate To, a growth factor of Epina-estr and Amylum) and physical (an ultra-violet radiation, ozone and the constant magnetic field (MF) with an induction of 300 Gs) factors of preseeding processing on body height and biochemical indicators of sprouts of barley ordinary.

Seeds of barley divided into groups and irradiated in the magnetic and plasma MPU-1 installation. Then, these groups in turn processed chemical components, couched and observed for thirteen days.

Influence of these influences of factors on activity of such plants of enzymes, important for activity, as a catalase and peroxidase in leaves of sprouts of barley ordinary is studied.

The activity of peroxidase was determined by a colorimetric method by Boyarkin.

The specific activity of a catalase was determined by Korolyuk and Ivanova's method.

Preseeding processing, including a magnetic field with an induction of 300 Gs within 1 minute turned out what the increased viability of seeds, increase in length of leaves twice, activities of a catalase for 12%, peroxidases for 23% in relation to monitoring testifies to a complex of physical factors of the favorable for sprouts of barley.

The most efficient way of processing of plants can be put into practice in the modern crop production for increase in productivity of crops and increase in effectiveness of the applied mineral fertilizers.

Results of work make a particular contribution to development and perfecting of methods of preseeding processing of seeds that will allow to increase efficiency of a harvest of crops.

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