УДК 635.657:631.53.01

EFFECT PREPLANT PROCESSING SEED ON PHYSIOLOGICAL AND BIOCHEMICAL PROCESSES DURING THE GERMINATION OF SEEDS CHICKPEAS.

L. M. Honchar, O. M. Shcherbakova

Processing of seeds nodulating bacteria and molybdenum solution is an effective reception for improving chickpea seed germination by activating redox processes in seeds. Increased activity of peroxidase in 1,8–2,0 times helps to reduce the stress in seeds and enhance seed germination.

Chickpeas, sort, legume-ryzobialna system, presowing processing seed.

Nut is one of the oldest and most common legumes in the world, which is used in different continents in food and feed purposes, as well as raw material for canning and food industries. [6] Seeds of chickpea nabubnyaviye slowly in soil for germination requires 140 160% of its weight of water. For lack of moisture the seeds in a state of forced rest, lack of oxygen and low temperature of the soil also negatively affect the process of seed germination [1, 2, 5]. For sufficient moisture and favorable conditions metabolitychni processes in seeds activated, increases respiration rate, which is an indicator of seed germination [4].

However, the increase in the intensity of breathing activates the triggers lipid peroxidation, which are involved in the startup seed germination and activation of antioxidant system. Activate LPO (lipid peroxidation) due to the accumulation of malondialdehyde

(MDA) is one of the mechanisms for the recovery of metabolic release of seed dormancy. [1]

Control of these processes has peroxidase and other high - and low molecular weight compounds. The feature is the ability action peroxidase

*Науковий керівник – доктор сільськогосподарських наук, професор С. М. Каленська

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enzyme to catalyze the oxidation of organic substrates with the participation of oxygen, an enzyme that can act as oxidases [3]. According to the authors, peroxidase capable of performing the role of initiator process of seed germination, as the deepening of seed dormancy peroxidase activity decreases, which occurs due to higher MDA [2].

The aim - to study the effect of chickpea seed preplant treatment on germination and physiological and biochemical features of its germination. Material and methods of research. The experimental part of the work executed in 2012-2014 pp. in a stationary experiment OP "Agronomic Research Station" (p. Wheat Kyiv region) and analytical research laboratory of the Department of Plant National University of Life and Environmental Sciences of Ukraine. Soil research areas – typical black soil humus-hrubopyluvato suhlynkovyy. Specific gravity of soil solids is 2.68 g / cm3 density in equilibrium - 1,15-1,25 g / cm3, sustainable wilting humidity - 10.9% humus content in the layer of 0-20 cm - 4 60% in the 25-50 cm - 4.22%, pH of salt extract - 6,9-7,1; absorption capacity - 30,3-31,4 mg / eq per 100 g soil. The content of humus in the topsoil (by IV Tyurin) - 4.6%, the content of mobile phosphorus (for Machyhinym BP) - 6,2-6,5, potassium - 9,1-11,1 mg 100 g soil.

Nut placed in the margins of the fields 10 stationary rotation experiment. – predecessor barley. The total area of the unit area - 42 m2, accounting - 28.8 m2, quadruple repetition of the experiment.

The influence of presowing treatment of seeds chickpeas on physiological and biochemical processes of germination indicate the relationship between peroxidase activity and content of MDA. Increased activity of peroxidase helped reduce MDA and thus reduce stress on seed germination activation.

Peroxidase activity in early chickpea seed germination for his treatment M. ciceri + MRC (concentration 1: 100) is significantly increased in 1,8 2,0 times. This indicates that the seed treatment option not only promotes its active germination, but sustain, as peroxidase catalyzes the reaction in seeds oxidase

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and peroxidase oxidation reaction product is water, which is extremely necessary seed at rest. Other MRC concentration compatible with the strain of M. ciceri ST 282 also contributed to the increase of peroxidase activity, with the observed dependence on the concentration of the drug.

The gradual decrease in the concentration of MRC increased peroxidase activity. The peak activity detected by MRC concentration of 1: 100 with further decrease in the concentration of MRC observed a gradual decrease in peroxidase activity. This dependence on the concentration of peroxidase activity MRC protezhuvaly and processing seed strain of M. ciceri ST 282. Application inoculated seed strain of M. ciceri ST 282 had little effect on peroxidase activity, increasing it by 40% compared with the control.

Research laboratory seed germination chickpea varieties Rosanna and Triumph have shown that it depended on the similarity peroxidase activity and concentration of MDA. Thus, in the control variant (water treatment) was 84% similarity at variety Rosanna and 86% in grade Triumph, while for seed treatment M.ciceri 282 ST + strain MRC (1: 100), these figures increased respectively to 96 and 99% . We noted that during seed treatment only MRC had little effect on laboratory germination, compared with a control option. Thus, treatment of seed varieties Rosanna MRC Laboratory germination ranged from 85 to 91%, MRC + M.ciceri strain ST 282 - 85 to 96%, and - Triumph grade from 86 to 89%, with two-component processing seeds - from 87 to 99%.

Conclusions. Treatment of seeds nodule bacteria and molybdenum solution is an effective technique for improving chickpea seed germination by activating redox processes in seeds. Increased activity of peroxidase in 1,8-2,0 times helps to reduce stress and enhance seed germination. This alternative treatment has provided increasing chickpea seed germination under 96 and 99%. Apply preplant treatment only nodule bacteria or colloidal solution provided smaller percentage of molybdenum similar seeds, which amounted to 85-91%.

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