P-048 **Physiologically active (nano) chips for seeds preseeding processing of the rice by method of capsulation**

Voropaeva N. , [1#] Ruban I. [1#], Yusupov K., [1#], Saimnazarov Yu. [1#] ,Varlamov V. [2 * 1]
Uzbek rice research institute, Tashkent, Uzbekistan, [2] Centre "Bioengineering" RAS, Moscow, Russia

* Supervisor # Contact email bionanotex_l@mail.ru

INTRODUCTION

In rice sowing significant losses of a crop and quality of received production are caused by negative influence of phytopathogenes - activators of various diseases. For struggle against these negative factors there are use a lot of fungicides in terms, optimum for protection of seeds and plants of rice.

Now we use fungicides and other preparations for complex protection of plants against activators of diseases often are toxic enough and consequently development ecologically less dangerous or safe technologies in rice sowing is an actual problem. Thus realization of two ways in the decision of this problem is possible. First, it is necessary to use ecologically safe and less-and nontoxical means of plant protection, and secondly, to reduce the charge ща fungicides and other preparations with preservation of their efficiency by development of the technologies directed on decrease of norms of application of means of protection of plants. It allows to reduce impurity oa ecosystem by ecotoxics and significally to reach economy of means for purchase of expensive preparations.

The purpose of researches is improvement of technology the protection of rice from phitopathogens - activators of diseases with application ecologically safe (nano)chips for biocapsulation with inclusion in their structure of various physiologically active substances.

MATERIALS AND METHODS

Realization of this object in view is reached due to development (nano) chips on the basis of thindispersed natural minerals (highporous sorbents-modified ща vermiculite), filled with fungicides, possessing by the certain type of activity (Vitavaks), and substances (Agrochit), raising the immune status of plants (elisitors), adjusting their growth, development and providing increase of adaptibility of plants to negative factors of an environment, and their application at preseeding processing seeds of rice by capsulation method.

Developed (nano)chips on the basis of water-soluble polymer (WSP) - natrium salts of carboximetilcellulose (NaCMC) with elisitor Agrochit, Vitavaks and modified vermiculite (MVM) put on seeds by capsulation method with formation on their surfaces of an equal, well kept covering [1-5].

Preseeding of ground in small plot experiences - standard in a facilities: autumn ploughing - on depth up to 25 sm, spring dack set - on depth up to 15 sm, discing, and yarrowing. A background of a mineral feed the general in all variants - $N_{180}P_{120}K_{150}$. Norm of seeding - 190 kg of seeds (5 million pieces) on hectare. A water mode - flooding. The agricultural technician of experience - standard in rice sowing region. As the control the raw seeds served. As the standard used variants of seed processing with Vitavaks. The area of allotments in small plot experiences makes - 50 m^2. Experiences are incorporated in 4 frequency on skilled fields of Uzbek rice research institute. The sort of rice seed was Mustakillik Accounts and spent supervision according to the accepted techniques and the developed instructions [8-10].

RESULTS AND DISCUSSION

Results of the researches in small spot field experiences testify to some reduction of density of standing of plants in a phase of shoots in skilled variants in comparison with the control (seeds are processed by nothing) and the standard (seeds are processed by standard Vitavaks in recommended by firm-manufacturer norm of the charge, that, apparently, is connected with effect of braking of water inflow in the seeds, caused by the nature of matrixes-carriers of physiologically active substances. Thus growth of plants in all variants of experience slightly exceeded control values, except for variants of experience where seeds were processed by Vitavaks (standard); NaCMC together with Agrochit. In these variants of experience the parameter of height of plants was essentially above in comparison with the control. Similar law has been established and on size of length of a root.

Density of standing of plants in a tillering phase varied from 88,3 pieces/m^2 (the least value) in the control up to 99,1 pieces/m^2 in the standard (the greatest parameter). Used multifunctional (nano)chips for preseeding processing seeds of rice promoted some increase in density of standing of plants in comparison with the control and conceded on this parameter to reference values. Processing of seeds NaCMC together with MVM

promoted increase in height of plants as in comparison with a control variant of experience, and the standard. In other variants of experience the height of plants was above, than in the control, but below or at a level of the reference values, Similar data have been received on a parameter of length of a root of plants of fig.

Density of standing of plants in a shooting phase in all variants of experience exceeded control parameters, and in separate - at processing seeds NaCMC together with MVM and Vitavaks; and also NaCMC together with MVM - reference. Thus the height of plants was above in the standard in comparison with the control and other variants of experience. The length of a root of plants in the standard in a shooting phase was less in comparison with the control and other variants of experience. The greatest length of a root is noted in a variant of experience at preseeding processing seeds NaCMC together with Vitavaks.

As a result of the lead researches it has been established, that under influence (nano) the chips used in preseeding preparation of seeds, density of standing of plants on end of the vegetative period essentially did not change. The parameter of height of plants of rice in all variants of experience considerably did not vary depending on multifunctional systems used for preseeding processing and changed from 124,9 sm до132,2sm Other dependences have been received at the analysis of values of factor tillering. This parameter varied in enough wide limits depending on variants of experience. The least parameter of tillering factor has noted been in control and the standard variants of experience. In other variants of experience of value of this parameter exceeded the control and the standard. The highest factor of tillering has been received in variants of experience with processing seeds NaCMC together with AgroChit and MVM; NaCMC together with MVM; NaCMC together with Agrochit. The length of main brush slightly varied by variants of experience - from 19,9 sm in the control over 21,6 sm in variants of experience with processing seeds NaCMC together with MVM; NaCMC together with Agrochit and MVM. The greatest weight of grain main brush has noted been in variants of experience with processing seeds NaCMC together with Agrochit and MVM; NaCMC together with MVM. In these variants of experience the increase in weight of grain lateral brush in comparison with the control, the standard and other variants of experience has been shown. Processing of rice seeds developed (nano)systems also promoted increase in weight of grain brush lateral in comparison with the control and the standard. As researches have shown, the parameter of emptyseeding varied from 2,3 % in a variant of experience with processing seeds NaCMC together with Agrochit up to 6,4 % in the control. The weight of 1000 seeds in all variants of experience exceeded control values. The greatest parameter has been received in a variant of experience with processing seeds NaCMC together with Vitavaks and NaCMC together with AgroChit and MVM.

Total parameter of the revealed effects is productivity of culture of fig. Has been shown, that the greatest increase of a crop of 26,9 μ/hectares in relation to the control and 24,3 μ/hectares in relation to the standard has been received at processing seeds MV with NaCMC and Agrochit. The significant increase of 22,5 μ/hectares in relation to the control and 19,9 μ/hectares under the attitude to the standard has been established at processing seeds MVM together with NaCMC. Processing of seeds NaCMC together with Agrochit also promoted essential increase in productivity of culture of rice (in comparison with the control) on 19,0 μ/hectares, in comparison with the standard - on 16,4 μ/hectares. Processing of seeds NaCMC together with Vitavaks led to increase in a crop of culture of rice at 13,6 μ/hectares. Its inclusion in structure with modified vermikulite MVM and NaCMC promoted increase in productivity at 16,6 μ/hectares in comparison with the control, and 14,0 μ/hectares in comparison with the standard.

CONCLUSIONS

Thus, studied ecologically safe systems - physiologically active (nano) the chips including in structure derivatives of chitozan (preparation Agrochit), natural modified mineral MV (vermiculite), filmformer (NaCMC) and intended for preseeding processing seeds of culture of rice by a capsulation method increased productivity of this culture in comparison with the control and the standard by 26,9 c/he and 24,3 c/he accordingly. The received effects are caused by joint action of all components developed (nano) chips at their certain parity in structure of (nano) systems for bioincapsulation.

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