

Prospects of the use new technology of the exfoliate capsulation of rice seeds

M. Sharipov, I. Ruban, N. Voropaeva, K. Yusupov
Plant Protection Institute of the Republic of Uzbekistan, Bioinnotex
4, Babur St., Tashkent region, 700140, Uzbekistan
E-mail: lametash@bcc.com.uz



Introduction

The risks in the growing agricultural cultures in irrational conditions of using the chemical method of plant protection cause the researchers to develop new ecological safe technologies in agrarian complex, promoting the minimization of the loads on ecosystem.

For decision of this problem companies producing pesticides develop the preparations of the new generation, clean burn with vastly extended spectrum of the action and preparations forms of the chemical production of plant protection witch have possessing synergism of the action.

This is a difficult problem. For it realization it is necessary to consider the plural factors of the external influence on the plants. It is not possible always to carry even the best developments to different regions and get equally high results.

So important developments adapted to regional condition founded on local raw materials resource. Significant also is a reduction of prime cost of agricultural products with using of such developments.

One of such developments is technology of complex protection of the rice against disadvantage factors of surrounding ambiances, which realize to account of the seed processing with multipurpose polymeric system of capsulation method.

The particularity of this development is concluded in unlike traditionally taken methods of the use herbicide - the putting into ground and in plant vegetation it use before sowing. In this case it is used technology of the exfoliate capsulation of seeds.

Material and methods

Technology of the exfoliate capsulation.

The first layer is entered by regulators and developments of growing and fungicides, and in the second - herbicides. Natural water-soluble polymers use as matrix where biologically active materials are immobilized.

The using of the herbicides on the seeds surface with composition of polymeric forms before swing allows to reduce the rates of the consuption of the herbicide, exclude the labour outlay on overland and air treatment which are recommended by companies – producers of herbicides, that brings ti the essential reduction of the contamination of ecosystems and reduction of products cost.

The production experiences.

Production experiences was organized In Andijan branch of Plant Protection Institute of the Republic of Uzbekistan, on discovery of biological efficiency of rice seeds capsulation with different polymeric forms of the herbicides (PPFG) Gulliver against diseases and weeds on rise sowing according with methods [3] allowing to use preparations [4].

The experiences have taken place in Teshiktosh Andijanarea Jalolkuduk region on the following scheme:

1. Gulliver – treatment in vegetation (standard)
2. Roslin + amount of microelements + Gulliver + Na-CMC
3. Topsin M + amount of microelements+ Gulliver + Na-CMC
4. Control - seeds without treatment

For treatment were used the rice seeds sort Avanguard. The exfoliate treatment of the seeds designed by polymeric forms of the herbicides with capsulation method were conducted on dragee machine.

Results and Discussion

As a result of studies it was shown that most efficiency in suppression of the weeds (the chicken millet) is revealed in variant with treatment of PPFG, in composition which is incorporated amount of microelements of plants feeding and Roslin facilitator (Table 1).

High efficiency of this system was noted and in cane suppression round weeds and reed. For using fungicide Topsin M and amounts of microelements in PPFG in greater degree was suppressed chicken millet and reed. This system rendered the essential influence on suppression of the against diseases.

The Table 1. Influence new PPFG on productivity of the culture of the rice harvest

	Bioefficiency ,%	Harvest, c/he	Adding to the control , c/he
1.	88,9	47,6	7,0
2.	92,5	55,3	14,7
3.	93,1	55,9	15,3
4.	-	40,6	0,0

On the 45 days of taking the accounts were received similar results on suppression of weeds. Treatment with PPFG including the composition of microelements and fungicides Topsin M promoted some increase in contrast with standard of the suppression chicken ask and round weeds.

On the 60 days of the accounts suppression of the weeds in the most degree was noted in variant of the experience with use of composition PPFG Roslin and Topsin M in contrast with standard and checking.

Use Gulliver as standard, and new PPFG with enabling the amount of microelements feeding the plants and Roslin promoted essential increase to productivities of the rice in contrast with checking.

The most gain of the harvest was received in variant of the experience with weds treatments of PPFG with enabling the amount of microelements feeding the plants and Roslin.

This factor was below in variant with using the amount of microelements feeding the plants and Topsin M in composition PPFG, but above, than in gage variant.

Thereby, in the results of production experience it was installed that biological efficiency designed preparation forms of the herbicides against weeds in variant experience with seed capsulation has formed at the average for 60 days of the accounts 94,1%- 94,8% , but productivity - 57,1-55,9 c/g, in standard - 54,7 c/g, in checking variant - 43,0 c/g. The phitotoxicity of new PPFG to the culture of the rice is not discovered.

Conclusions

The new PPFG bring about reduction of the diseases of the rice, achievement of the effect of the suppression of the weeds in greater degree in contrast with variant of the experience, where Gulliver will take as standard according to recommendation of the company Du Pont, and increase the harvest.

The effects with provision for significant spare facilities on undertaking additional action of using the herbicide Gulliver, in accordance with different methods of its contributing (ground, vegetation plants by recommendation of the company Du Pont), are indicative of that treatment of rice with new PPFG is a perspective way in ecological safe technology of preparing the sowing material.

The new method of herbicide Gulliver using by fixings on the rice with composition of polymeric forms before sowing treatment the rice seeds can be recommended for introducing in practical of rice cultivation.

References

- 1.I. Ruban et. al (2006) *Native nanoobjects and technology of capsulation increasing their stability to environment unfavourable factors*. In Book XIV International Workshop on Bioencapsulation (Lausanna, Switzerland) 435-437
- 2.M. Sharipov et.al (2007) *Polymers use in technology of rice seeds preparation to sowing* In Book XV International Workshop Bioencapsulation (Vienna, Austria) P-O6
3. B. Dospekhov (1983) *Methods of field researches* M, Kholos c.420.
4. The list of permit pesticides in agriculture of Republik Uzbekistan on 2007-2011 (2007) (Uzbekistan, Tashkent) 216 .