



BIOLOGICAL EFFECTIVENESS OF FUNGICIDES AGAINST FUSARIOSIS WITHER DISEASE OF HOT PEPPER UNDER FIELD CONDITIONS

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Abstract. In this article, the biological effectiveness of fungicides at different application rates against fusarium wilt, one of the main fungal diseases of hot pepper, was studied in the field. According to studies, Alfa vita 20% em.c. 2,0-2,5 l/ha and Sebir sus.k. It was found that the biological efficiency of fungicides tested at the rate of 0,3-0,5 l/ha was from 76,4% to 93,6%.

Key words: hot pepper, disease, fungus, fusarium wilt, fungicide, consumption rate, Fundazol 50% n.kuk., Alfa vita 20% em.k., Sebir sus.k.

INTRODUCTION. Today, special attention is paid to the cultivation of hot pepper plants in our republic, and the areas are expanding year by year. Pepper is an important vegetable and spice crop grown worldwide.

The main producers of hot pepper are the countries of Asia, Latin America, Africa, Europe and North America. Originally from Mexico, pepper has been sold as a medicine in pharmacies since the 16th century. Scientists from Asian countries found that the people of the countries that regularly eat pepper live longer, and the death rate from cardiovascular diseases and stroke is 13% lower in them. Hot pepper is used as a medicine, in dry ground form, in special pickling, salting and canning of vegetable crops [1].

Pepper preparations are used in folk medicine for rheumatic diseases, pharyngitis, asthma, cough, anorexia, hemorrhoids. Green chili peppers have more vitamin C than citrus fruits, and red chili peppers have more vitamin A than carrots. Chili (hot) pepper reduces the accumulation of platelets in the blood, which also improves blood circulation. Chili peppers reduce the risk of cancer by preventing carcinogens from binding to DNA. They contain salicylic compounds that relieve pain. In addition, eating pepper releases endorphins in the body, which relieves pain [7; 8].

Various pathogens damage the pepper plant. Among the main fungal diseases of hot pepper, there are leaf spots (*Alternaria alternata*), fusarium (Fusarium, *Phoma capsici*), phytophthora (*Phytophthora capsici*) and other diseases [5; 9; 10].

The most common disease in chili (hot) peppers is root rot, which causes up to 100% yield loss in years when this disease is widespread [4; 6].



PLACE OF EXPERIMENTS AND RESEARCH METHODS. In 2019, our experiments were carried out on 63.0 hectares of hot pepper "Cayenne" variety of the "Dostlik" farm in the Upper Chirchik district of the Tashkent region.

Anti-disease Alfa vita 20% em.k. (carboxin + thiram) fungicide 2.0-2.5 l/ha and Sebir sus.k. (metalaxyl +fludioxonil) fungicide at the rate of 0.3-0.5 l/ha and as a template Fundazol 50% n.kuk. We conducted an experiment by spraying with (benomyl) fungicide at the rate of 0.8-1.0 kg/ha during the growing season.

The spread of the disease was determined based on the following formula:

$$P = \frac{n \cdot 100}{N}, \text{ here}$$

R - spread of disease, % ;

n - number of diseased plants in the sample, pcs;

N - total number of plants in the sample, pcs [2; 3].

We calculated the development of diseases with the following formula:

$$R = \frac{\Sigma(a \times b) \cdot 100}{N \cdot K} \text{ here,}$$

R – disease progression %;

$\Sigma(a \cdot b)$ – the sum of the number of plant organs affected by the disease multiplied by the expression in points;

N – the total number of observed plant members;

K – the highest score on the scale [2; 3].

We determined the biological effectiveness of fungicides using the following formula.

$$C = \frac{(Ab - Ba)}{Ab} * 100, \text{ here,}$$

C – biological effectiveness of drugs, %;

Ab – biological effectiveness of drugs, %;

Ba – the development of the disease in the experimental variant, % [2; 3].

RESEARCH RESULTS. Researches were carried out from the time the first symptoms of the disease appeared on the plant, the first treatment (May 15). Fourteen days later, the second treatment was carried out on May 29 (Table 1). Alfa vita 20% em.c. against fusarium wilt disease. 2.0-2.5 l/ha and Sebir sus.k. 0.3-0.5 l/ha was tested. As a template Fundazol 50% n.kuk. Tested at rates of 0.8-1.0 kg/ha. In the control option (not sprayed with the drug), the damage of hot pepper with fusarium wilt disease was from 16.5% to 26.6%, and the



development of the disease was from 4.7% to 6.8%. Productivity was 13.2 tons per 1.0 ha.

Alfa vita 20% em.k. when fungicide is applied at the rate of 2.0 l/ha, incidence is from 2.8% to 3.7%, disease development is from 0.8% to 1.2%, biological efficiency is from 82.3% to 83.0% did Productivity increased to 18.1 tons per 1.0 ha.

Alfa vita 20% em.k. fungitsidi 2,5 l/ga meyorida qo'llanilganda kasallanish 2,0 % dan 2,4% gachani, kasallik rivoji 0,3% dan 0,6% gachani, biologik samaradorlik 91,1% dan 93,6% gachani tashkil qildi. Hosildorlik esa 1,0 ga maydondan 19,3 tonnani tashkil etdi.

Table 1

Biological effectiveness of fungicides against Fusarium wilt disease of hot pepper under small field conditions. Dostlik Khojali, Upper Chirchik District, Tashkent Region, "Cayen" variety, (2019)

№	Name of drugs	Standard, l or kg/ha	15.05.2019			29.05.2019			Productivity, t/ha
			Getting sick, %	The development of the disease, %	Biological efficiency, %	Getting sick, %	The development of the disease, %	Biological efficiency, %	
1.	Control - the drug was not sprayed	-	16,5	4,7	-	26,6	6,8	-	13,2
2.	Fundazol 50% n.kuk. (template)	0,8	2,7	0,7	85,1	4,3	1,1	83,8	18,4
		1,0	2,4	0,6	87,2	3,5	1,0	85,2	18,8
3.	Alfa vita 20% em.k. (karbaksin + tiram)	2,0	2,8	0,8	83,0	3,7	1,2	82,3	18,1
		2,5	2,0	0,3	93,6	2,4	0,6	91,1	19,3
4.	Sebir sus.k. (metalaksil + fludioksonil)	0,3	4,1	1,0	78,7	5,2	1,6	76,4	17,2
		0,5	2,9	0,8	83,0	4,8	1,3	80,8	17,6
	Ekf05				2,8			3,1	0,8



Sebir sus.k. when the fungicide was tested at the rate of 0.3 l/ha, the incidence was from 4.1% to 5.2%, the development of the disease was from 1.0% to 1.6%, the biological efficiency was from 76.4% to 78.7%, and the yield was 10.0 to 17.0 tons had a relatively low figure.

Sebir sus.k. When tested at a rate of 0.5 l/ha, morbidity is from 2.9% to 4.8%, disease development is from 0.8% to 1.3%, biological efficiency is from 80.8% to 83.0%, and productivity is 10 to 17.6 tons.

As a template Fundazol 50% n.kuk. In the variant used at the rate of 0.8 kg/ha, morbidity is from 2.7% to 4.3%, disease development is from 0.7% to 1.1%, biological efficiency is from 83.8% to 85.1%, productivity and from the area of 1.0 ha it reached 18.4 tons.

As a template Fundazol 50% n.kuk. In the variant used at the rate of 1.0 kg/ha, morbidity is from 2.4% to 3.5%, disease development is from 0.6% to 1.0%, biological efficiency is from 85.2% to 87.2%, productivity and it was 18.8 tons per 1.0 ha.

CONCLUSION. Fusarium wilt disease is one of the most dangerous diseases of hot peppers. Under the influence of this disease, the productivity of hot pepper decreases significantly. Frequent use of fungicides with the same effect against the disease causes resistance of pathogens to these fungicides. Therefore, when the first symptoms of the disease appear, Alfa vita 20% em.c. 2.0-2.5 l/ha or Sebir sus.k. Initial treatment at the consumption rate of 0.3-0.5 l/ha and second treatment after 15 days and third treatment after 30 days will stop the development of the disease. These fungicides can be used against fusarium wilt of hot pepper to control the disease and achieve high yields.

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