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ANALYSIS OF TOLERANCE OF YELLOW RUST SPORES IN DIFFERENT VARIETIES OF WHEAT IN LABORATORY CONDITIONS

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Abstract:

In this article, the resistance of soft and hard wheat kinds to the yellow rust disease was found by artificially infecting grain with rust disease in laboratory conditions and the selection, evaluation and implementation of variety of wheats that resistant to the yellow rust disease were described.

Keywords: Research, experiment, methodology, fungus, spore, rasa, artificial infection, resistance, soft wheat, hard wheat, chlorosis, evaluation

INTRODUCTION. In all countries of the world, the issue of ensuring food security for the population is a priority. In addition, due to the global climate changes occurring on the earth in recent years, precipitation, drought and other natural disasters are increasing, causing serious damage to the productivity of agricultural crops. As a result, *Puccinia striiformis* and *Erysiphe graminis f.sptritici* diseases develop in the fields. From this point of view, the most reliable and economically effective method is to create resistant wheat sorts.

RESEARCH METHODS; The effects of rust diseases were studied by B.Hasanov, R.A.Gulmurodov 2013 methods, damage by yellow rust disease were determined by (Manners, 1950) [1].

According to the research of A.Meyliev (2016), it is necessary to study the resistance of winter wheat to rust diseases separately. Because the epiphytotia of the spread of rust diseases can cause a serious threat to grain productivity [2].

In the studies of B.Hasaniv., D.Turdieva., K.Alimjonava (2019), when evaluating the resistance of wheat to yellow rust disease, spores of the yellow rust fungus were thoroughly mixed with talc and sprayed with special water sprayer tool according to "Procedural instructions" (Hasanov, Gulmurodov 2013) and are artificially infected [3].

D.Musirmanov, J.Ergashevlar (2015) reported that in a place where plants are infected artificially by yellow rust and brown rust diseases,sorts with complex resistance are being selected depending on the climatic conditions of our republic. [4].

RESULTS. Research was conducted based on the mentioned actual problems in the "Plant Protection" laboratory of the Southern Agricultural Research Institute on evaluations of the resistance of wheat varieties to yellow rust disease.

Table 1

Evaluation of resistance of soft and hard wheat sorts to yellow rust disease (Puccinia striiformis) in laboratory conditions (Manners, 1950) B.A.Hasanov., R.A.Gulmurodov methods 2013 y).

№	Wheat sort	Planted date	Germination date of seeds at 25 °C	The day of inoculation at temperature9 °C	The date of appearance of chlorosis is at a temperature of 16 °C	The day when the rust spore disease broke out	The average incidence rate of yellow rust, %
1	Yaksart	13.05.2022	17.05.2022	20.05.2022	27.05.2022	30.05.2022	20MS
2	Turkiston	13.05.2022	18.05.2022	20.05.2022	28.05.2022	31.05.2022	40 MS
3	Gozgon	13.05.2022	17.05.2022	20.05.2022	29.05.2022	01.06.2022	5 R
4	Hisorak	13.05.202	19.05.2022	20.05.2022	27.05.2022	30.05.2022	10 MR

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5	Bunyodkor	13.05.2022	18.05.2022	20.05.2022	28.05.2022	31.05.2022	20 MS
6	Shams	13.05.2022	17.05.2022	20.05.2022	29.05.2022	01.06.2022	40 MS
7	Kesh-2016	13.05.2022	19.05.2022	20.05.2022	29.05.2022	01.06.2022	40 MS
8	Shukrona	13.05.2022	19.05.2022	20.05.2022	28.05.2022	31.05.2022	R
9	Sarbon	13.05.2022	17.05.2022	20.05.2022	27.05.2022	30.05.2022	40 MS
10	Yuksalish	13.05.2022	18.05.2022	20.05.2022	27.05.2022	30.05.2022	60 S
11	Rohat	13.05.2022	18.05.2022	20.05.2022	28.05.2022	31.05.2022	60 S
12	Turon	13.05.2022	19.05.2022	20.05.2022	27.05.2022	30.05.2022	R
13	Ishonch	13.05.2022	17.05.2022	20.05.2022	29.05.2022	01.06.2022	R
14	Dovon	13.05.2022	17.05.2022	20.05.2022	28.05.2022	31.05.2022	10 R
15	Istiklol	13.05.2022	18.05.2022	20.05.2022	27.05.2022	30.05.2022	20 MS
16	Ziyokor	13.05.2022	19.05.2022	20.05.2022	29.05.2022	01.06.2022	40 MS
17	Shijaot	13.05.2022	19.05.2022	20.05.2022	28.05.2022	31.05.2022	60 S
18	Sardor	13.05.2022	17.05.2022	20.05.2022	27.05.2022	30.05.2022	20 MS
19	Navroz	13.05.2022	18.05.2022	20.05.2022	29.05.2022	01.06.2022	40 MS
20	Parvoz	13.05.2022	18.05.2022	20.05.2022	28.05.2022	31.05.2022	R
21	J.Gavhari	13.05.2022	17.05.2022	20.05.2022	27.05.2022	30.05.2022	60 S
22	Gallakor	13.05.2022	19.05.2022	20.05.2022	27.05.2022	30.05.2022	5 R
23	Ravon	13.05.2022	19.05.2022	20.05.2022	29.05.2022	01.06.2022	R
24	Oksaroy	13.05.2022	18.05.2022	20.05.2022	28.05.2022	31.05.2022	R
25	Mingchinor	13.05.2022	18.05.2022	20.05.2022	27.05.2022	30.05.2022	10 MR
26	Langar	13.05.2022	17.05.2022	20.05.2022	28.05.2022	31.05.2022	R
27	Nasaf	13.05.2022	19.05.2022	20.05.2022	29.05.2022	01.06.2022	R
28	Zilol	13.05.2022	17.05.2022	20.05.2022	27.05.2022	30.05.2022	R
29	Nafis	13.05.2022	18.05.2022	20.05.2022	28.05.2022	31.05.2022	R
30	Musaffo	13.05.2022	17.05.2022	20.05.2022	29.05.2022	01.06.2022	20 MS

In order to measure the resistance of wheat varieties to yellow rust disease, artificial rust spores infection to soft and hard wheat varieties was carried out on May 20 (inoculation). First, yellow rust spores were collected and mixed with saltrol-170, artificially infected with rust spores using a special sprayer, and placed in a dark room in a special devices at a temperature of 9 °C for 1 day.

During the research, our wheat sorts were kept at a temperature of 9 °C for 24 hours after which taken to a special room for observation process. In the observations, it was observed that after 7 days of yellow rust spore, the spore passed into the state of chlorosis. Yellow rust spores disappeared on wheat leaves 10 days after artificial

inoculation. However, it was known that urindinospores of yellow rust disease developed in some varieties early and in some kinds late.

When measuring the resistance of soft wheat sorts to yellow rust disease,kinds namely Yuksalish , Rokhat , Shijoat , Janub Gavhari , were regarded as highly resistant while Kesh-2016, Yaksart, Turkestan, Hisorak, Shams, Sarbon , Istiklal, Ziyakor, Sardar , Navruz were found to be moderately resistant sorts of wheat.

Note: resistant sorts were up to R-10% (R-10 MR), moderately resistant kinds up to 30-50 (10 MR-50 MR), moderately yielding sorts up to 30-50% (30MS-50 MS), up to 50-10 S (50 S-100 S) were found to be strong yielding varieties. Among the soft wheat sorts, Shukrona ,Turon ,Pershish, Dovan, Parvoz, Gallakor, Ravan, Oksaroy, Hisorak are resistant to yellow rust disease. Studies have shown that hard wheat sorts do not show diseasive symptoms and do not damage to plant leaves.

As it can be seen from the results of the analysis, it was found that soft wheat sorts are non resilient to yellow rust diseases, and hard wheat varieties are resistant. It is recommended for farms and clusters to plant sorts namely Shukrona, Turon ,Pervoz, Dovan, Parvoz, Gallakor , Ravan, Oksaroy, Ghazgon that are among the most productive and yellow rust resistant soft wheat sorts.

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