EVALUATION OF SOME SUNFLOWER GENOTYPES FOR RESISTANCE TO *OROBANCHE CUMANA* WALLR. IN TURKEY

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INTRODUCTION

Broomrape *(Orobanche cumana* Wallr.) was seen in the farmer fields in the Thrace region of Turkey in 1981. VNIIMK 8931 has been used by farmers since 1964 and broomrape was not seen till 1981. As soon as broomrape was observed, broomrape seeds were collected from commercial sunflower fields. The research team of the Edirne Agricultural Research Institute conducted different tests in the field and greenhouse in 1982. In one greenhouse test a totality of 182 sunflower hybrids, open-pollinated varieties (OPV) and lines were screened for resistance to broomrape.

The purpose of this study was to select resistant sunflower genotypes.

MATERIALS AND METHODS

182 sunflower genotypes were obtained from different countries. Each sunflower material was separately planted in single rows in the greenhouse, using 10 plants in each row. Broomrape seeds were inoculated uniformly in each row. Many observations were made till physiological maturity, such as the number of sunflower plants attacked by broomrape, number of broomrapes on each sunflower plant over the soil and the number of germinated broomrapes on each sunflower plant under the soil. By using these values, frequency of the attack, average intensity of the attack and degree of the attack were calculated. However the number of germinated broomrapes on each sunflower plant under the soil was omitted.

As a definition, frequency of the attack is the percentage of attacked sunflower plants per row, average intensity of the attack is the average number of broomrape individuals on one sunflower plant. Degree of the attack is calculated by using $\frac{\text{Frequency} \times \text{Intensity}}{100}$ formula (Vrânceanu at al., 1980).

In this nursery 182 different sunflower genotypes were used, however only the results of 13 important hybrids and OPV's are given in Table 1. Some hybrids and OPV's as Pemir, Romsun 53, HS-18 and Peredovik were replicated. That's why they have more than one result in Table 1.

Table 1

Reaction of some sunflower genotypes to broomrape

Entry	Origin of seeds	Type *	Frequency of the attack %	Average intensity of the attack %	Degree of the attack %
VNIIMK 8931	Turkey	OPV	100	3.67	3.67
Peredovik	Spain	OPV	100	7.00	7.00
Peredovik	FAO	OPV	100	8.25	8.25
Peredovik	Bulgaria	OPV	100	9.00	9.00
Peredovik	Turkey	OPV	86	3.67	3.15
Record	Romania	OPV	71	4.80	3.40
Pemir	Spain	OPV	17	1.00	0.17
Pemir	Spain	OPV	71	1.80	1.27
Romsun 53	Romania	H	0	0	0
Romsun 53	Romania	H	25	3	0.75
HS-18	Romania	H	50	1.75	0.87
HS-18	Romania	H	0	0	0
TR-52	Turkey	H	13	2.00	0.26
Citosol-3	Hungary	H	25	2.50	0.62
Zelenka	USA	OPV	57	1.50	0.85
Dekalb 894	USA	H	22	1.00	0.22
HS-121	Romania	H	20	1.00	0.20
Sorem 80	Romania	H	25	3.00	0.75
Sun-Gro 380 A	USA	H	33	1.00	0.33
GK-70	Hungary	OPV	67	1.67	1.11

* OPV = open-pollinated variety
H = hybrid

RESULTS AND DISCUSSION

Local multiplications of VNIIMK 8931 and Peredovik, which are of different origins, were found to be very susceptible to broomrape in this test. The degree of the attack of Record variety which is also susceptible, was 3.40.

Some hybrids and OPV's showed different levels of resistance to this broomrape race or group of races. These genotypes are Romsun 53, HS-18, Pemn, C'tosol-3, Zelenka, Dekalb-894, HS-121, Sorem 80, Sun-Gro 380 A, GK-70 and Turkish hybrid TR-52.

CONCLUSIONS

Some sunflower genotypes, HS-121, Dekalb-894, TR-52, Sun-Gro 380 A, Romsun 53 and HS-18 showed higher resistance to broomrape than other entries. However detailed studies for breeding purposes will be continued. A differential set obtained from Romania is already sown in the greenhouse in order to determine which race or races of broomrape are present in the commercial sunflower fields.

REFERENCES

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L'ÉVALUATION DE QUELQUES GÉNOTYPES DE TOURNESOL POUR LA RÉSISTANCE À *OROBANCHE CUMANA* WALLR. EN TURQUIE

Résumé

On présente les résultats de l'essai de la résistance vis-à-vis *d'Orobanche cumana* de quelques génotypes locaux et étrangers de tournesol. Les formes les plus sensibles ont été les cultivars VNIIMK 8931, Peredovik et Record. Une série de cultivars et d'hybrides, parmi lesquels Romsun 53, HS-18, HS-121, Dekalb 894, TR-52 et Sun-Gro 380 A ont présenté une très grande résistance, le degré de l'attaque étant parfois égal à 0 (Romsun 53, HS-18). Les recherches sont en cours de déterminer exactement les races d'Orobanche répandues en Turquie ainsi que de trouver un set différentiateur de lignées autofécondées.

EVALUACIÓN DE UNOS GENOTIPOS DE GIRASOL EN CUANTO A LA RESISTENCIA A *OROBANCHE CUMANA* WALLR. EN TURQUÍA

Resúmen

En el trabajo están presentados los resultados que se han obtenido al testar la resistencia a Orobanche de unos genotipos de girasol locales, así como de proveniencia extranjera. Las más sensibles formas probaron ser las variedades VNIIMK 8931, Peredovik y Record. Algunos variedades e híbridos, entre los cuales Romsun 53, HS-121, Dekalb 894, TR-52 y Sun-Gro 380 A mostraron una resistencia muy elevada, el grado de ataque siendo unas veces igual a 0 (Romsun 53, HS-18). Se viene investigando a continuación para establecer exactamente las razas de Orobanche difundidas por el país, así como para establecer un set diferenciador de líneas puras.