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Short Communication

Evaluation of Wheat Germplasm Against the Cereal Cyst Nematode (*Heterodera avenae* Woll.)

ARJUN LAL, RAJAN AND V. K. MATHUR

National Bureau of Plant Genetic Resources, New Delhi

The cereal cyst nematode, *Heterodera avenae* Woll. was proved to be the causal organism for 'Molya' disease of wheat and barley in Rajasthan (Vasudeva, 1958). Since then this nematode has been reported from all the wheat growing regions in India including Rajasthan, Punjab, Haryana, Delhi, Himachal Pradesh and Jammu & Kashmir. Use of resistant cultivars is one of the most effective and economical ways of reducing this nematode in soil. Resistance in wheat against *H. avenae* is known so far only in two cultivars, namely, 'Loros' from Denmark (Nielsen, 1966) and 'Katyil' from Australia (Brown and Young, 1982).

To find out a source of resistance, screening of a large number of germplasm collections having greater genetic diversity is essential. With this objetives a total of 365 wheat collections available with NBPGR were screened for resistance against *H. avenae*. In the preliminary screening, seeds were sown in nematode infested soil, contained in plastic tubes (with inoculum level of 5 cysts/tube). Each cyst contained an average of 220 eggs. The experiment was terminated 95 days after planting. Roots were gently washed with water to remove soil and examined for white females or juveniles after staining with acid fuchsin-lacto-phenol. The collections were categorised as : resistant-no female/cyst; moderately resistant-upto 5 cyst/plant and susceptible-more than 5 cysts/plant. During the second season, all the moderately resistant and resistant collections were further tested by inoculating 500 freshly hatched larvae/plant. The experiment was terminated after 95 days and roots and soil were examined for presence of larvae/females/cysts, if any. Susceptible varieties, Kalayansona and C-306, were used as controls. The results of final screening are given in Table 1.

TABLE 1. SCREENING OF WHEAT GERMPLASM AGAINST *Heterodera avenae*

Category	Accession Number
Resistant	NC-55673, NC-57587, NC-59603, NC-60222, NC-64221
Moderately resistant	IC-26787, IC-28676, IC-31616, IC-47483, NC-55583, NC-55739, NC-57515, NC-57573, NC-57575, NC-57586, NC-59140, NC-59565, NC-59566, NC-59582, NC-59590, NC-59594, NC-59597, NC-60201, NC-60207, NC-60215, NC-62308

Out of 365 collections, only five viz., NC-55673, NC-57587, NC-59603, NC-60222 and NC-64221 were found to be free from nematode attack. NC-60222 is a semi-dwarf, while others have moderate yield potentiality. Amongst the moderately resistant collections, NC-57575 has high tillering and NC-57586, NC-59590, NC-59582 have higher yield potential.

REFERENCES

Brown, R. H. and R. M. Young. 1982. Katyil, a wheat resistant to cereal cyst nematode. Agnote Depart. Agric., Victoria, Agdex 112/38, 2 pp.

Nielson, C. H. 1966. Untersuchungen uber die vererbung der resistenz gegen den getreidenematoden (*Heterodera avenae*) beim weizen. *Nematologica* **12** : 575-578.

Vasudeva, R. S. 1958. Annual Report. *Div. Mycol. & Pl. Path.*, IARI, New Delhi.