ABSTRACT

The rice root-knot nematodes infest rice plants and cause considerable yield loss to the tune of 17-30% to rice cultivation. In order to identify resistant source against them, 414 rice cultivars were tested by artificially inoculating fifteen-day-old pot-grown seedlings with 100 second stage juveniles. Only two entries from breeding lines, 127-28-1-1-1 and 183-6-1-1-3 were found resistant with score 2. Two lines from NBPGR collection and 4 aerobic cultivars were tolerant to root-knot nematode leaving all other in susceptible and highly susceptible category.

Key words: Meloidogyne graminicola, screening, resistance, aerobic varieties

The rice root-knot nematode, Meloidogyne graminicola has been reported as a pest of rice causing 17-30% yield losses due to poorly filled kernels (Jain et al., 2007). Though this nematode is common in uplands, they also thrive well in submerged condition. The potentiality of its threat to agriculture was observed after the outbreak of this nematode in farmer’s field in Mandya district of Karnataka (Prasad et al., 2001). The infective juveniles (second stage larvae) penetrate near the root tip, then migrate intercellularly through cortex and invade the phloem tissues. The invaded cells become the multinucleate giant cell with unidirectional flow of nutrients. Thereby, the nematode disturbs both the flow of nutrients and photosynthates in the plant.

In view of its obnoxious nature and poor awareness among the farmers, the only effective management option is breeding for resistance varieties. Several nematode tolerant cultivars have been identified but still a strong resistant source has not been identified. Therefore, to identify strong resistant donor lines against this nematode. Henceforth, 414 rice cultivars including 262 breeding lines, 68 lines from national bureau of plant genetic resources, New Delhi, 81 aerobic varieties and 3 hybrids were evaluated against this nematode under net house condition, for identification of resistant lines.

Out of 414 rice genotypes screened, only two entries from breeding lines, 127-28-1-1-1 and 183-6-1-1-3 were found resistant with score 2. Two lines from NBPGR collection (IC NO. 298563; 2159) and 4 aerobic cultivars (Solani; Sathia; Laxmansal; Mugi) were tolerant to root-knot nematode leaving all other in susceptible and highly susceptible category (Table 1).
It is evident from the results that only a very few lines from farmers’ field are tolerant to rice root knot nematode leaving many cultivars to highly susceptible category. The two breeding lines can be used as a donor parent in resistance breeding against rice root knot nematode.

**REFERENCES**
