THE ESTABLISHMENT OF INDOOR EVALUATION CRITERION AND IDENTIFICATION OF SUNFLOWER RESISTANCE LEVEL TO BROOMRAPE WITH PETRI DISH SYSTEM

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Abstract

The sunflower broomrape is a parasitic plant that parasitizes on the roots of sunflowers. Sunflower plants show dwarf, loss of yield, and dramatic reduction of oil and protein content caused by parasitization. In this study, the Petri dish filter paper system, which was established previously, was used to build up a set of indoor criterion to evaluate the sunflower resistance level to broomrape. Through comparing the resistance level of 12 sunflower varieties between field trial and indoor petri-dish system, we set up the evaluation system of sunflower resistance to broomrape under petri-dish system. In this identification standard, no tubercles cultivar was identified as an immuned variety; the number of tubercles in each dish of sunflower root between 1 and 5 was identified as highly resistance; the number of tubercles was between 5 and 10 is moderately resistant; the number of tubercles between 10 and 15 is susceptible and the number of tubercles over 15 is a highly susceptible variety. Via using this criterion, the resistant level 80 sunflower varieties to broomrape were identified under lab condition. The results indicated that 14 sunflower varieties showed immune response to broompare, including 11 oil and 3 confectionary varieties; twenty five were identified as highly resistant level, including 14 oil and 11 confectionary varieties. Twenty two were identified as moderately resistant level, containing 7 oil and 13 confectionary varieties. Twelve were identified as susceptible level, consisting of one oil and 11 confectionary varieties. Seven were identified as highly susceptible level and all of them were confectionary varieties. In general, oil sunflowers varieties were more resistant to broomrape comparing to confectionary varieties.

Keywords: sunflower broomrape, resistance identification criterion, petri dish system, resistance identification of sunflowers

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