DEVELOPMENT OF *BEMISIA TABACI* (BIOTYPE Q) ON TOMATO CULTIVARS WITH/WITHOUT THE *M*I GENE

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OBJECTIVES

Tomato resistance to *Meloidogyne* spp. and *Macrosiphum euphorbiae* has been related to the presence of the *M*i gene. Both organisms have a similar feeding behaviour to that observed in *Bemisia tabaci*, thus the possible resistance of tomato cultivars carrying the *M*i gene to this whitefly species is being studied. The specific objective of this work was to compare parameters of the biological cycle of *B. tabaci* (biotype Q) on tomato plants with/without the *M*i gene.

METHODS

The tomato cultivars used were: Roma and Moneymaker (without the *M*i gene) and Ronita and Motellé (with the *M*i gene). Seedlings with 2-4 leaves were transplanted to plastic flasks containing nutrient solution, and then placed individually inside transparent cylinders with holes covered by a nylon mesh. A couple of 1 day-old whiteflies from the biotype Q were introduced in each cylinder. Eight couples per cultivar were used. Cylinders were placed in a growth chamber 24°C:21°C (Light:Dark), 60-70 % RH and photoperiod L16:D8 h.

The parameters analysed were: adult longevity, number of eggs laid by each female, mortality of immatures and time of development for each immature stage. Data were analysed by the non-parametric Kruskal Wallis test. A chi-square test was used for mortality data.

RESULTS

No differences were found in female longevity when comparing the four cultivars. However, females on cultivars with the *M*i gene lived significantly longer (31.94 days) than on cultivars without it (22.87 days). Males lived 17 days as an average; the differences observed in male...
longevity were not related with the presence of the Mi gene (Roma < Motelle < Moneymaker = Ronita).
The number of eggs laid per female did not differ between cultivars. It ranged between 85 for Roma and 126 for Moneymaker, with an average value of 113 eggs per female. Mortality of immatures was also similar for the four cultivars, the average percentage of eggs that reached the adult stage being 82 %.
The total time of development from egg to adult differed when comparing the four tomato cultivars (Roma < Motelle < Ronita = Moneymaker. The average values were (in days): 28.7 (Roma), 29.5 (Motelle), 27.6 (Ronita) and 26.1 (Moneymaker). However, the difference was not associated to the presence of the Mi gene. Significant differences were also observed in some intermediate times: from egg to larva (Roma = Motelle < Ronita = Moneymaker) and from larva to pupa (Roma = Motelle < Ronita < Moneymaker), these differences also bearing no relation to the presence of the Mi gene.

CONCLUSIONS

Based on the obtained results it cannot be said that the presence of the Mi gene affects the development of B. tabaci (biotype Q) under laboratory conditions. Similar results were obtained in a previous work with the B biotype (Pascual et al., 1999).
Other free-choice studies indicate a preference for cultivars not carrying the Mi gene (Nombela et al., 2000). This seems to indicate that this resistance response could occur in an earlier phase of the plant-insect interaction, before flies become established on the tomato plant.

REFERENCES