

Whitefly resistance in tomato

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Abstract

Whitefly resistance is a much desired trait in tomato growing. An F2 population was studied for resistance against whitefly Bemisia tabaci by fusion of phenotypic and metabolic traits. Multivariate statistical analyses revealed that a large complex of metabolic components was associated with whitefly resistance and a smaller number of metabolites were associated with whitefly susceptibility. Minor QTLs were identified for whitefly phenotypic parameters and metabolic constituents that associated with whitefly resistance and susceptibility. In an F2BC1 population we observed that some genotypes were still completely resistant against whiteflies, but the complexity of metabolic profiles was strongly reduced and only a selection of resistance-related constituents was present. A QTL analysis of metabolic constituents associated with whitefly resistance revealed the presence of metabolic that co-localize with whitefly phenotypic QTLs. Plant morphologic QTLs characteristics were studied and a positive correlation was found between the presence of type I and IV glandular trichomes on the leaf surface and reduced vitality and oviposition of the whitefly. In addition, it was observed that the presence of type I and IV trichomes was positively correlated.