ADAXIAL VS. ABAXIAL DIFFERENCES IN PREFERENCE AND PROBING BEHAVIOUR OF *BEMISIA TABACI* ON ACYLSUCROSE-PRODUCING TOMATO

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The whitefly *Bemisia tabaci* (Genn.) is widely distributed in warm and temperate regions throughout the world. Previous studies conducted with the wild tomato *Solanum pimpinellifolium* L. accession TO-937 and the introgression line ABL 14-8, indicated that both genotypes were resistant to *B. tabaci*, the vector of tomato yellow leaf curl disease (TYLCD). This resistance was based on presence of type IV glandular trichomes and the production of acylsucroses, mainly located on the abaxial leaf surface. The influence of the adaxial and abaxial tomato leaf surface of the nearly-isogenic lines 'Moneymaker' and ABL 14-8 (without and with type IV glandular trichomes, respectively) on *B. tabaci* settling (under choice and non-choice conditions) as well as the probing and feeding behavior was studied on plants at the 4-leaf growth stage, prior to full resistance expression, and at the 10-leaf growth stage, when the resistant traits were present. . Experiments were carried-out on the third youngest leaf of test plants. Significant differences were observed at the 4-leaf stage on the adaxial leaf surface under non-choice conditions, where the mean number of adult whiteflies per leaflet was higher on ABL 14-8. At the 10-leaf stage, significantly lower whitefly numbers were counted on the abaxial leaf side of ABL 14-8 than on 'Moneymaker' under both free-choice and no-choice tests. The opposite was observed on the adaxial surfaces in which significantly higher counts of *B. tabaci* occurred in ABL 14-8 than in 'Moneymaker'. These results indicate that *B. tabaci* avoids settling on the abaxial side of the leaflet of ABL 14-8 when the plants are at the 10-leaf stage. Significant differences were observed for the feeding behavior of *B. tabaci* on both leaflet sides of 'Moneymarker' suggesting preference of whiteflies to feed on the abaxial surface with a higher number of sustained feeding ingestion events from the phloem sieve elements. However, for ABL 14-8 in which type IV glandular trichomes and acylsucrose accumulation are present mainly on the abaxial surface of leaves, differences in feeding behavior indicated a preference to settle and probe on the adaxial than on the abaxial side of the leaf.

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