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Screening of *Lycopersicon* species for tomato yellow leaf curl virus resistance and evaluating their differences by RAPDs

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Tomato yellow leaf curl virus (TYLCV) disease transmitted by whitefly (*Bemisia tabaci*) is a major constraint in tomato production of Sri Lanka. All commercial varieties are more susceptible to the disease. Hence, development of high yielding resistant varieties is the most effective approach for minimizing this problem. Therefore, the objectives of this study were, to screen some selected tomato accessions including wild and commercial types for TYLCV resistance and, to detect polymorphism between resistant and susceptible accessions by RAPDs (Randomly Amplified Polymorphic DNA).

Thirteen tomato accessions, which included all six wild accessions and some selected commercially grown types, available at the Plant Genetic Resources Centre were used in the study. Each was screened for TYLCV resistance under screenhouse conditions by two methods; using viruliferous whiteflies (*B. tabaci*) and graft inoculation. In the screening test using *B. tabaci*, resistance was assessed using an AVRDC index based on the degree of infection 0-100%. According to the results, *L. hirsutum* was highly resistant (HR), *L. cheesmanii* was moderately resistant (MR) and accession 008227 was moderately susceptible (MS). All other accessions were susceptible (S). Therefore, *L. hirsutum* could provide a source of resistance to improve tomato against TYLCV. In the graft inoculation screening, all successful grafts: *L. esculentum* cultivars (K.W.R., Ravi, Thilina) and *L. cheesmanii* developed the disease. Although MR to TYLCV when transmitted by whiteflies, all successful grafts of *L. cheesmanii* were susceptible when graft inoculated. This indicates that the cause of resistance may be closely related to repulsion of *B. tabaci*. It was not possible to verify this for accession 008227 and *L. hirsutum* as none of the grafts were successful.

A RAPD analysis was carried out for the 13 tomato accessions using seven decamer primers: OPA5, OPA7, OPA9, OPA13, OPA18, OPK14 and OPD7. A unique band was detected by OPA5 for *L. hirsutum*, the only HR accession in *B. tabaci* screening. The polymorphism observed may be useful for detecting a marker for TYLCV resistance when screening mapping populations in the future.