

CHARACTERIZATION AND EVALUATION OF WILD TOMATO RELATIVES AND
INTER-SPECIFIC HYBRIDIZATION BETWEEN

Lycopersicon esculentum (THILINA) AND *Lycopersicon hirsutum* (LOO643)

N.P.S Nawarathne¹, Ranjani Peiris² and D.A.U.D Devasinghe¹

¹Department of Plant Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka

² Horticultural Crop Research and Development Institute, Gannoruwa, Peradeniya, Sri Lanka

Tomato (*Lycopersicon esculentum* Mill.) is a widely cultivated crop having an importance in terms of human nutrition, export potential and contribute to generate employment in urban and rural areas in Sri Lanka. However, the yield reduction in tomato is mainly due the occurrence of viral diseases especially the curly top virus. Therefore, a study was undertaken to characterize and evaluate wild tomato accessions and to carry out inter-specific hybridization characterizing tomato varieties with curly top virus resistance.

First step of the study was to characterize and evaluate eight wild tomato accessions namely *L.pimpinellifolium* (Loo134, 135, 139, 140), *L.peruvianum* (Loo669, 672), *L.cheesmanii* (Loo4253) and *L.hirsutum* (Loo643) belonging to four different species for curly top virus resistance at the Horticultural Crop Research and Development Institute (HORDI). The seeds were sown in trays and 17-days-old seedlings were transplanted in pots. Plant and fruit characteristics of the accessions were recorded. The results showed that all the accessions except *L.cheesmanii* (Loo4253) had the indeterminate plant growth, semi-erect leaf attitude which is transferable to produce high yielding variety and were mostly out breeders. The wild species showed high brix value, dark red color, high titratable acidity and high soluble solids content indicating they are valuable donors for improving the fruit quality of tomato. Results also showed that accession *Lycopersicon hirsutum* (LOO643) was resistant to curly top virus.

The second step was to perform an inter-specific hybridization between *L.esculentum* (Thilina) and *L.hirsutum* (Loo643) as viral resistant male parent. The results revealed that the pollination between the varieties was successful (86.6%) when *L.hirsutum* (Loo643) used as male parent.

Key words: Wild accessions, Inter-specific hybridization, Tomato