

**USE OF SSR MOLECULAR MARKERS AND MORPHOLOGICAL
TRAITS FOR THE SELECTION OF TOMATO (*Solanum lycopersicum* L.)
PARENTAL VARIETIES**

B.M.I.S.L. Bandara¹, K. Hettiarachchi², H.M.D.A.K. Herath¹

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

²*Plant Genetic Resources Centre, Gannoruwa, Peradeniya, Sri Lanka.*

Tomato is one of the most popular, economically important and widely grown vegetable crops in Sri Lanka. Analysis of genetic diversity in tomato is useful in the selection of parental genotypes for attempting to broaden the genetic base of future cultivars. This Study was conducted at Plant Genetic Resources Centre, Gannoruwa to find out suitable genetically distant parents for development of new tomato varieties. Fourteen parental tomato cultivars and their F1 progenies were grown for morphological characterization. Fifteen morphological traits were recorded in order to determine the genetic diversity and genetic relationships among them. Genomic DNA was isolated using modified CTAB method and screened for polymorphism using six Simple Sequence Repeats (SSR) primers. Amplified products were resolved in Polyacrylamide Gel Electrophoresis (PAGE). SSR 139, TOM 63-64 and TOM 69-70-primers showed polymorphism and they can be used as molecular markers for the selection of parental tomato varieties. The most distant parents showed best heterosis and the close parents exhibited poor heterosis. Two parental varieties expressed distant from all others. One of them gave the best heterosis for yield. The genetic distance information obtained from this will be useful for plant breeders for planning crosses among these tomato cultivars.

Key words: Genetic diversity, Heterosis, Polymorphism, *Solanum lycopersicum* L., SSR markers