

DNA FINGERPRINTING OF BIG ONION (*Allium cepa* L.)

R.M.S. Samanjika¹, W.L.G. Samarasinghe² and Nanda Senanayaka¹

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

² *Molecular Biology Division, Plant Genetic Resource Centre, Gannoruwa, Peradeniya, Sri Lanka.*

Big onion, *Allium cepa* L. is a diploid plant ($2n=16$) with huge nuclear genome and the second most important vegetable crop in the world. Molecular characterization of various accessions and sequence characterization have been done, and genetic maps and genomic libraries have been created though number of genetic analyses has been limited by biennial generation time and severe inbreeding depression.

The available germplasm in Sri Lanka includes both exotic and local accessions and a mixture of them. The local types have been developed by mass selection based on their phenotypic variations. A fingerprint was developed in this study for seven big onion accessions using ten Simple Sequence Repeat primers. DNA was extracted from seven populations according to the CTAB protocol. Polyacrylamide gels (8%) were run to identify polymorphism in different alleles of Polymerase Chain Reaction products. The molecular data were subjected to statistical analysis using popgene32 and SPSS programs, and genetic distances were calculated. The taxonomic differences and relationships of seven accessions were identified from the clusters in the dendrogram and their genetic distances.

Dambulu red P and Galewela light red local selections were closely related with Agrifound light red variety. Dambulu red R local type was related with Rampure variety and Pusa Red MI had different genetic characteristics from the other local types and exotic varieties. Genetically identical varieties could not be observed and all the varieties had differences in genetic level.

Key words: *Allium cepa* L., Molecular characterization, DNA fingerprinting