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Assessment of genetic diversity in selected *Capsicum* spp. cultivated in Sri Lanka

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The existing germplasm of chilli (*Capsicum annuum* L.) in Sri Lanka consists of local, introduced and mixtures of both types. A proper molecular characterization for cultivated chilli accessions has not been done in Sri Lanka. Therefore, a study was carried out to evaluate the genetic diversity within ten chilli accessions available in Sri Lanka using six Simple Sequence Repeat (SSR) primers at the Field Crops Research and Development Institute (FCRDI), Mahailluppallama. DNA was extracted from accessions using modified CTAB protocol. PCR amplified products were run on a Polyacrylamide gel to identify polymorphism. Data were analysed using PopGene 3.2 software. The results revealed that the primer set; JS 108 F and JS 109 R showed the highest polymorphic information content (PIC) value (0.8328). Data analysis showed that Hen miris, MICH-3, ICPN-18-7 line, Arunalu, MI-2 and MI green grouped in one cluster. Waraniya purple, Hot beauty, Purple Nai Miris (*C. chinense*) and Acc.No.11642 (*C. frutescent*) grouped in another where Waraniya purple and Hot beauty formed a sub cluster. Purple Nai Miris and Acc.No.11642 formed another sub cluster with more distance. Arunalu and MI-2 formed a cluster with maximum similarity and that may be due to the use of MI-2 as a parent for Arunalu. MI green also clustered with Arunalu and MI-2, forming a slightly related cluster and it may be due to the use of MI-2 as one of the parents of MI green. The most distant phylogenetic relationship (2.3541) was observed between Hot beauty and MICH-3 while the lowest genetic distance (0.1406) was observed with Arunalu and MI-2. The accessions, Hot beauty, MICH-3 and Waraniya Purple can be used as genetically diverse parent for future hybridization program. For further studies primer set M1 (JS 108 F and JS 109 R primers) can be recommended to obtain the highest polymorphic information content (PIC). Further studies with more number of SSR markers would give more information.

Keywords: Chilli accessions, Diversity, SSR markers

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