IDENTIFICATION OF SSR MARKERS AND MORPHOLOGICAL TRAITS FOR PURITY TESTING OF LOCALLY DEVELOPED TOMATO (*Lycopersicon esculentum* MILL.) HYBRIDS

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Development of hybrid varieties is an important strategy to increase production and productivity of Tomato (*Lycopersicon esculentum* Mill.) in Sri Lanka. This leads to the next immediate question of Hybrid purity for the production of quality seeds. Testing of hybrid purity at molecular level has many advantages over morphological purity testing, commonly known as GOT (Grow Out Test).The aim of this study was to identify morphological characters and SSR markers that can be used to test hybrid purity of locally developed two hybrid tomato varieties *Maheshi* and *Bhathiya*. Morphological characterization was done at Plant Genetic Resources Centre, Gannoruwa and data were collected according to the tomato descriptors. For the molecular study, genomic DNA from two hybrid cultivars and their corresponding parents were isolated and screened for polymorphism using eight SSR primers. Amplified products were resolved in PAGE (Polyacrylamide Gel Electrophoresis). The analysis helped to identify several morphological characters with the ability to differentiate parents and hybrids namely; purple seedling pigmentation, leaf type and fruit characters. According to the molecular analysis, Tom 69-70 showed polymorphism between P_1 and P_2; parents of *Maheshi*, P_3 and P_4; Parents of *Bhathiya*. Tom 89-90 showed polymorphism only for P_1 and P_2. Rest of the primers showed monomorphic nature of the traits. This suggests the possibility of using SSR markers Tom 69-70 and Tom 89-90 successfully, to validate purity of the variety *Maheshi* and Tom 69-70 for the purity of variety *Bhathiya*.

Keywords: Hybrid purity, Morphological traits, SSR markers, Tomato hybrids