Application of Marker-assisted Selection in Persimmon (Diospyros kaki Thunb.) Breeding by High Resolution Melting

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Persimmon (Diospyros kaki Thunb.) cultivars are classified into 4 types depending on the relationship between astringency of the mature fruit and the effect of the seeds on the loss of astringency. Among the 4 types, pollination-constant non-astringent (PCNA)-type persimmons stably lose astringency during fruit development without the effect of the seeds on the loss of astringency. Molecular markers linked to the AST locus that controls fruit astringency type in persimmon. Sequence characterized amplified region (SCAR) markers were developed in the genomic region adjacent to probe 5R, and their primers were designed in the flanking region of Indel-3. However, these SCAR markers are difficult to use when analyzing large amounts of seedlings. Here we developed new high resolution melting markers that enable easy, reliable and fast selection of the PCNA genotype from breeding populations. Several primers were designed at the same region of the SCAR markers and forward primer HRM-F and a reverse primer HRM-R is the most useful and reliable primer set. This HRM primer set is considered the most practical tool for marker-assisted selection (MAS) in persimmon breeding.

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