

INTISARI

Tomat merupakan komoditas hortikultura yang memiliki prospek baik sebagai buah segar ataupun produk olahan. Pengembangan varietas komersial banyak didominasi dengan varietas hibrida. Pemilihan tetua hibrida biasanya melalui persilangan diallel dan dievaluasi sehingga memerlukan biaya dan waktu. Oleh sebab itu, dibutuhkan metode lebih cepat dalam pemilihan kombinasi tetua yang mempunyai heterosis terkait potensi hasil tinggi atau sifat baik lainnya. Salah satu cara pendugaan heterosis didasarkan pada jarak genetik tetua dengan penanda molekuler. Tujuan penelitian ini adalah mengetahui hubungan jarak genetik tetua dengan penanda molekuler *Sequence-Related Amplified Polymorphism* (SRAP), nilai heterosis, dan korelasi antara jarak genetik dengan heterosis. Tomat ditanam dilakukan di lahan Getasan Kab. Semarang, Jawa Tengah sedangkan pengamatan morfologi dan pengamatan molekuler dilakukan di Laboratorium Genetika Fakultas Pertanian Universitas Gadjah Mada. Bahan tanam yang digunakan terdiri atas 6 galur tetua (3 jantan dan 3 betina) dan 9 F1 hibrida. Rancangan penelitian menggunakan Rancangan Acak Kelompok Lengkap (RAKL) dengan tiga ulangan, masing-masing ulangan diambil 3 tanaman sampel. Hasil penelitian menunjukkan jarak genetik tetua berdasarkan Nei *Distance* paling tinggi adalah tetua jantan 14 (MA 131-6-2-1) dan tetua betina 16 (MA 131-22-2-1). Nilai heterosis tertinggi terdapat pada berat buah per tanaman yang menunjukkan pada potensi hasil. Korelasi positif signifikan antara jarak genetik max dan MPH/BPH terdapat pada berat buah per tanaman, sedangkan korelasi negatif signifikan terdapat pada umur panen. Karakter lain tidak memiliki korelasi positif/negatif signifikan.

Kata kunci: tomat, jarak genetik, heterosis, hibrida, SRAP

ABSTRACT

Tomatoes are a horticultural commodity that has good prospects as fresh fruit or as a processed product. The development of commercial varieties is dominated by hybrid varieties. The selection of hybrid parents is usually through diallel crossing and is evaluated, which requires costs and time consuming. Therefore, a faster method is needed in selecting parent combinations that have heterosis related to high yield potential or other good traits. One way to estimate heterosis is based on the genetic distance of parents with molecular markers. The aim of this research is to determine the genetic distance of parents using Sequence-Related Amplified Polymorphism (SRAP), heterosis values of observed traits, and the correlation between genetic distance and heterosis. Tomatoes are planted on land in Getasan, Kab. Semarang, Central Java. Morphological and molecular observations were carried out at the Genetic Laboratory, Faculty of Agriculture, Gadjah Mada University. The planting material used consisted of 6 parental line (3 males and 3 females) and 9 F1 hybrids. The research design used completed randomized block design (RCBD) with three replications, 3 sample plants taken from each replication. The results showed that genetic distance of parents based on Nei distance was the highest for male parent 14 (MA 131-6-2-1) and female parent 16 (MA 131-22-2-1). The highest heterosis value is found in fruit weight per plant which indicates potential yield. A significant positive correlation between max genetic distance and MPH/BPH was found in fruit weight per plant, while significant negative correlation found in harvest age. Other traits do not have a significant positive/negative correlation.

Keywords: tomato, genetic distance, heterosis, hybrid, SRAP