

ABSTRAK

Santi Nurbaeti. 2020. Keragaman Genetik Garut (*Maranta Arundinacea* L.) Mutan 3 dengan Analisis Marka Random Amplified Polymorphic DNA (RAPD) Dibawah bimbingan Liberty Chaidir dan Puspita Deswina

Keberagaman tanaman pangan di Indonesia cukup melimpah. Salah satu tanaman pangan yang biasa dikonsumsi masyarakat Indonesia adalah umbi-umbian. Berbagai macam jenis umbi-umbian yang kaya karbohidrat dapat tumbuh di tanah Indonesia. Salah satu contoh umbi yang dapat tumbuh dengan baik di Indonesia adalah Umbi Garut. Varietas unggul diperlukan untuk memperoleh umbi dengan produktivitas tinggi. Salah satu tujuan dari penelitian ini adalah melihat keragaman genetik dari mutan garut berdasarkan morfologi yang telah diperoleh. Informasi keragaman genetik diperlukan dalam usaha perbaikan tanaman untuk mendapatkan varietas unggul. Penelitian dilakukan di Kampus Bioteknologi LIPI Jl. Raya Bogor KM 46 Cibinong, Kabupaten Bogor Indonesia. Metode yang digunakan dalam penelitian morfologi mutan garut adalah Rancangan Acak Kelompok (RAK) dengan 2 perlakuan dan 3 ulangan yaitu Aksesori mutan garut A = A pulosari, B = 25 Pandeglang, C = Cikondang, D = Taman Sari, E = MN-1 dan dosis sinar gamma R0 = 0 gray, R1 = 10 gray, R2 = 20 gray, R3 = 30 gray, R4 = 40 gray, R5 = 50 gray. Pengamatan keragaman genetik secara molekuler dengan menggunakan metode *Random Amplified Polymorphic DNA* (RAPD) 11 primer dan 30 sampel DNA mutan garut. Pengamatan dilakukan terhadap morfologi mutan garut meliputi tinggi tunas, jumlah anakan lebar daun dan panjang daun dengan metode penelitian). Hasil penelitian menunjukkan tidak adanya pengaruh pemberian radiasi sinar gamma pada morfologi garut. Hal ini dapat disebabkan beberapa faktor diantaranya pemberian pupuk dan media tanam. Hasil analisis menggunakan teknik RAPD menunjukkan keragaman genetik tanaman mutan garut mengalami peningkatan koefisien menunjukkan hasil 0.84% terbagi kedalam 6 kelompok.

Keyword: *Keragaman Genetik, Mutan Garut, Random Amplified Polymorphic DNA,*



ABSTRACT

Santi Nurbaeti. 2020. Genetic Diversity of Garut (*Maranta arundinacea* L.) 3th Mutans Generation by Analysis of Random Amplified Polymorphic DNA Markers (RAPD). Supervised by Liberty Chaidir and Puspita Deswina

The diversity of food plants in Indonesia is quite abundant. One of the food crops commonly consumed by the Indonesian people is tubers. Various types of tubers that are rich in carbohydrates can be grown in Indonesian soil. One example of tubers that can grow well in Indonesia is Garut Tubers. Superior varieties are needed to obtain tubers with high productivity. One of the objectives of this study is to see the genetic diversity of arrowroot mutants based on the morphology that has been obtained. Genetic diversity information is needed in the effort to improve plants to obtain superior varieties. The research was conducted at the Biotechnology Campus of LIPI Jl. Raya Bogor KM 46 Cibinong, Bogor Regency Indonesia. The method used in the study of the morphology of the arrowroot mutant was a randomized block design (RBD) with 2 treatments and 3 replications, namely accession of the arrowroot mutant A = A Pulosari, B = 25 Pandeglang, C = Cikondang, D = Taman Sari, E = MN-1 and dose of gamma rays R0 = 0 gray, R1 = 10 gray, R2 = 20 gray, R3 = 30 gray, R4 = 40 gray, R5 = 50 gray. Observation of genetic diversity by molecular use the method of Random Amplified Polymorphic DNA (RAPD) 11 primers and 30 arrowroot mutant DNA samples. Observations were made on the morphology of the arrowroot mutant including shoot height, a number of tillers, leaf width, and leaf length by the research method). The results showed that there was no effect of gamma-ray radiation on the morphology of arrowroot. This can be caused by several factors including fertilizer and planting media. The results of the analysis using the RAPD technique showed that the genetic diversity of the mutant arrowroot had an increase in the coefficient, indicating that the results were 0.84% divided into 6 groups.

Keyword: Genetic Diversity, Garut Mutants, Random Amplified Polymorphic DNA,