PENGARUH IRADIASI SINAR GAMMA TERHADAP FENOTIPIK BAWANG PUTIH KULTIVAR DOULU

ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh iradiasi sinar gamma terhadap fenotipik bawang putih kultivar Doulu serta mengetahui nilai LD_{50} iradiasi sinar gamma. Penelitian dilaksanakan bulan April – Agustus 2018. Radiasi pada umbi bawang putih dilakukan di Pusat Teknologi Keselamatan Dan Meteorologi Radiasi (PTKMR), BATAN, Jalan Lebakbulus Raya No.49 Jakarta pada 16 April 2018. Penanaman umbi dilakukan di Balai Penelitian Tanaman Sayuran, Desa Tongkoh, Berastagi, Sumatera Utara pada 20 April 2018. Rancangan yang digunakan dalam penelitian adalah Rancangan Acak Kelompok non faktorial dengan 6 perlakuan dosis radiasi yaitu 0 Gy (kontrol), 2 Gy, 4 Gy, 6 Gy, 8 Gy dan 10 Gy. Masing-masing taraf perlakuan diulang sebanyak 4 dan terdiri dari 10 siung bawang putih. Sehingga satuan dalam percobaan adalah 240 siung bawang putih. Parameter data kuantitatif yang diamati adalah umur tumbuh, tinggi tanaman, jumlah daun, jumlah siung, berat umbi, diameter umbi, berat siung, dan diameter siung. Parameter data kualitatif yang diamati adalah kepadatan daun, struktur umbi dan bentuk umbi. Data kuantitatif yang diperoleh dianalisis menggunakan sidik ragam dengan uji lanjut Beda Nyata Terkecil (BNT). Data kualitatif yang diperoleh dianalisis secara deskriptif. Hasil uji sidik ragam menunjukkan iradiasi sinar gamma berpengaruh sangat nyata pada tinggi tanaman, jumlah daun, jumlah siung, berat umbi, diameter umbi, berat siung, dan diameter siung bawang putih kultivar Doulu. Iradiasi sinar gamma tidak berpengaruh kepadatan daun, struktur umbi dan bentuk umbi bawang putih kultivar Doulu. Nilai LD_{50} iradiasi sinar gamma pada bawang putih kultivar Doulu adalah 6,28 Gy.

Kata kunci : Bawang putih, iradiasi gamma, *Lethal dose* (*LD*)

EFFECT OF GAMMA RAY IRRADIATION ON FENOTYPIC GARLIC DOULU KULTIVAR

ABSTRACT

The aims of the research was to know the effect of gamma ray irradiation on the phenotypic of Doulu cultivar garlic and determine the LD50 value of gamma ray irradiation. The study was conducted from April to August 2018. Radiation on garlic tubers was carried out at the Pusat Teknologi Keselamatan Dan Meteorologi Radiasi (PTKMR), BATAN, Jalan Lebakbulus Raya No.49 Jakarta on April 16, 2018. Planting of tubers was carried out at the Balai Penelitian Tanaman Sayuran, Desa Tongkoh, Berastagi, North Sumatra on April 20, 2018. The design used in the study was a non factorial randomized block design with 6 radiation dose treatments, namely 0 Gy (control), 2 Gy, 4 Gy, 6 Gy, 8 Gy and 10 Gy. Each treatment level was repeated as much as 4 and consisted of 10 cloves of garlic. So the unit in the experiment is 240 garlic cloves. Quantitative data parameters observed were growth age, plant height, number of leaves, number of cloves, tuber weight, tuber diameter, clove weight, and clove diameter. The qualitative data parameters observed were leaf density, tuber structure and tuber shape. Quantitative data obtained were analyzed using variance with the Least Significant Different (LSD) test. The qualitative data obtained were analyzed descriptively. The results of variance tests showed that gamma ray irradiation had a very significant effect on plant height, number of leaves, number of cloves, tuber weight, tuber diameter, clove weight, and diameter of Doulu cultivar garlic cloves. Gamma ray irradiation has no effect on leaf density, tuber structure and form of Doulu cultivar garlic tubers. The LD50 value of gamma ray irradiation on Doulu cultivar garlic is 6.28 Gy.

Keywords: Garlic, gamma irradiation, *Lethal dose* (LD)