RINGKASAN

Kekeringan merupakan salah satu dampak perubahan iklim yang mempengaruhi produksi padi sawah. Kekeringan berdampak serius terhadap pertumbuhan tanaman padi, terutama pada fase generatif yang dapat mengurangi hasil padi dan kualitas gabah. Evaluasi ketahanan kultivar-kultivar padi terhadap cekaman kekeringan diharapkan dapat mendukung produksi padi pada kondisi kekeringan. Penelitian ini bertujuan untuk : 1. mempelajari tanggap karakter morfologis sepuluh kultivar padi terhadap kondisi cekaman kekeringan; 2. mempelajari ketahanan sepuluh kultivar padi terhadap kondisi cekaman kekeringan; 3. mempelajari kekerabatan sepuluh kultivar padi berdasarkan karakter morfologis.

Penelitian ini dilaksanakan di *screen house* Fakultas Pertanian Universitas Jenderal Soedirman pada Maret 2020 sampai dengan Agustus 2020. Penelitian ini menggunakan Racangan Acak Kelompok (RAK) terdiri atas dua faktor yaitu faktor cekaman kekeringan dan faktor kultivar. Faktor cekaman kekeringan memiliki 2 taraf terdiri atas P1 (kondisi optimum) dan P2 (kondisi cekaman kekeringan). Materi penelitian yang digunakan adalah benih sepuluh kultivar padi yang berasal dari koleksi Laboratorium Pemuliaan Tanaman dan Bioteknologi Fakultas Pertanian Universitas Jenderal Soedirman dan Balai Besar Penelitian Tanaman Padi (BB Padi) Sukamandi. Variabel yang diamati meliputi karakter agronomis dan karakter morfologis (kualitatif dan kuantitatif). Analisis data yang digunakan adalah sidik ragam dan jika nyata dilanjutkan uji DMRT. Ketahanan kultivar terhadap cekaman kekeringan didasarkan pada *Standard Evaluation System for rice* (SES, IRRI) didukung perhitungan indeks sensitivitas kekeringan (ISK). Kekerabatan ditentukan berdasarkan analisis *cluster* menggunakan *SPSS*.

Hasil penelitian menunjukkan bahwa karakter morfologis sepuluh kultivar padi berbeda pada kondisi kekeringan, kecuali pada diameter ruas batang dan panjang akar. Kultivar Cirata, Membramo, dan Cisadane toleran terhadap kondisi cekaman kekeringan, sedangkan Remaja dan Ciherang peka berdasarkan SES dan ISK. Sembilan kultivar yaitu Cilamaya, Logawa, Barito, Atomita, Ciherang, Membramo, Remaja, IR20 dan Cisadane memiliki kekerabatan dekat serta diantaranya memiliki tetua yang sama. Kultivar Cirata memiliki kekerabatan yang jauh dengan kultivar lainnya.

Kata Kunci : kultivar padi, ketahanan, cekaman kekeringan, kekerabatan, karakter morfologis

SUMMARY

Drought is one of the impacts of climate change that affects lowland rice production. Drought has a serious impact on the growth of rice plants, especially during the generative phase which can reduce rice yields and grain quality. Evaluation of the resistance of rice cultivars to drought stress is expected to support rice production in drought conditions. This study aims to: 1. study the responsiveness of the morphological characters of ten rice cultivars to drought stress conditions; 2. studied the resistance of ten rice cultivars to drought stress conditions; 3. studied the relationship between ten rice cultivars based on morphological characters.

This research was conducted at the screen house of the Faculty of Agriculture, Jenderal Soedirman University from March 2020 to August 2020. This study used a randomized block mix (RAK) consisting of two factors, namely drought stress factors and cultivar factors. The drought stress factor has 2 levels consisting of P1 (optimum conditions) and P2 (drought stress conditions). The research material used was the seeds of ten rice cultivars from the collection of the Laboratory of Plant Breeding and Biotechnology, Faculty of Agriculture, Jenderal Soedirman University and Balai Besar Penelitian Tanaman Padi (BB Padi) Sukamandi. The variables observed included agronomic characters and morphological characters (qualitative and quantitative). The data analysis used was the variance and if it was real, it was continued with the DMRT test. The resistance of cultivars to drought stress is based on the Standard Evaluation System for rice (SES, IRRI) supported by the calculation of the drought sensitivity index (ISK). Kinship was determined based on cluster analysis using SPSS.

The results showed that the morphological characters of the ten cultivars of rice differed under drought conditions, except for the diameter of the stem and root length. The cultivars Cirata, Membramo, and Cisadane were tolerant of drought stress conditions, while Remaja and Ciherang were sensitive based on SES and ISK. The nine cultivars namely Cilamaya, Logawa, Barito, Atomita, Ciherang, Membramo, Remaja, IR20 and Cisadane have close kinship and among them have the same parents. The Cirata cultivar has a distant relationship with other cultivars.

Keywords: rice cultivars, resistance, drought stress, kinship, morphological characters.