

INTISARI

Pemuliaan cabai rawit tanggap mikoriza berpotensi sebagai strategi budidaya cabai rawit di lahan sub-optimal. Keragaman interaksi dengan jamur mikoriza arbuskular di antara genotipe tanaman menjadikan penyaringan sumber daya genetik perlu dilakukan. Penelitian ini bertujuan mengamati dan mengevaluasi ketergantungan mikoriza arbuskular pada lima belas aksesori cabai rawit. Percobaan dilaksanakan dengan menanam lima belas aksesori cabai rawit yang diinokulasi mikoriza dan kontrol (mikoriza lokal) di Pusat Inovasi Agroteknologi UGM, Kalitirto, Berbah, Sleman, Daerah Istimewa Yogyakarta. Analisis data kontinu persen kolonisasi dan biomassa menggunakan *linear mixed model* dengan metode estimasi REML (*restricted maximum likelihood*). Perangkingan dilakukan pada data ordinal kecepatan infeksi dan uji Friedman pada RMD (*relative mycorrhizal dependency*). Hasil penelitian menunjukkan bahwa keragaman persen kolonisasi di antara aksesori yang diinokulasi tidak berbeda nyata karena rentang rerata marginal yang sempit. Secara umum, tanaman yang diinokulasi memiliki persen kolonisasi yang lebih rendah daripada kontrol. Pada variabel biomassa, sebagian besar kultivar menunjukkan tanggapan yang positif terhadap inokulasi namun tidak mencolok dilihat dari nilai F. Rentang yang luas ditunjukkan oleh rerata marginal aksesori pada variabel bobot segar dan kering, namun heterogenitas varians menyebabkan kondisi ini diabaikan. Pengaruh aksesori pada RMD juga tidak bermakna karena sebaran nilai RMD sangat luas. Empat belas aksesori memiliki nilai RMD yang menyebar dan paling luas pada aksesori Blitar 3. Hanya aksesori 'Centil' yang menunjukkan RMD paling stabil. Aksesori 'Trisula Putih' memiliki rerata RMD tertinggi dan Blitar 3 dengan rerata RMD terendah. Hasil kajian ini menunjukkan terdapat potensi keragaman di antara aksesori cabai rawit namun belum dapat diajukan aksesori cabai rawit yang membawa karakter tanggap mikoriza arbuskular.

Kata kunci: mikoriza arbuskular, cabai rawit, *Capsicum frutescens* L., simbiosis

ABSTRACT

Breeding for mycorrhizal symbiosis is a potential strategy for suboptimal land and off-growing-season for chilli pepper production. Screening of genetic resources is necessary because broad studies recorded different responses among plant genotypes regarding mycorrhizal responsiveness. This study evaluated the dependence of arbuscular-mycorrhizal fungi on fifteen chilli pepper (*Capsicum frutescens* L.) accessions. Mycorrhiza inoculation consisted of two levels, i.e. mycorrhiza inoculated—M1 and non inoculated (local mycorrhiza only)—M0, conducted with randomized complete blocks layout in Agrotechnology Innovation Center of UGM, Kalitirto, Berbah, Sleman, Special Region of Yogyakarta. A linear mixed model with the restricted maximum likelihood method was employed for analyzing continuous response variables, while the ordinal response variable, i.e., the infection rate, was ranked. Additionally, a Friedman test was conducted to examine the relative mycorrhizal dependency (RMD). The research findings showed negligible variation in arbuscular mycorrhizal (AM) colonization among accessions due to a narrow range in marginal means. In general, inoculated plants had lower colonization compared to non-inoculated plants. In the extent of plant biomass, most accessions responded positively but minimally to inoculation, shown by poor F score for the interaction effect. Marginal means in accessions exhibit a wide range of wet and dry weight; however, heterogeneous residual variance cause this condition to be neglected. Variation in mycorrhizal colonization dependency among the genotypes was insignificant, with ‘Trisula Putih’ genotype showing the highest RMD means and Blitar 3 genotype the lowest. A wide distribution of RMD was noticed with the widest range of RMD in ‘Blitar 3’ whilst the most stable in ‘Centil’. RMD and dry weights of chilli pepper genotypes were weakly correlated, and no direct relationship observed with the percentage of colonization. These results document the potential variation in responsiveness that can occur depending on the chilli pepper’s genotype; however, it was unattainable to propose chilli peppers accessions as the breeding materials for AMF responsiveness.

Keywords: arbuscular mycorrhiza, chilli pepper, *Capsicum frutescens* L., symbiosis