

INTISARI

Produksi bawang merah di Indonesia terdapat kendala karena adanya Organisme Pengganggu Tumbuhan (OPT). Oleh karena itu, sebagai salah satu upaya mengatasi permasalahan tersebut dilakukan aplikasi *Bacillus velezensis* dan Jamur Mikoriza Arbuskular pada *seed treatment* sebelum dilakukan penanaman. Tujuan penelitian ini adalah untuk mengetahui pengaruh aplikasi Jamur Mikoriza Arbuskular dan *Bacillus velezensis* terhadap pertumbuhan dan kesehatan tanaman bawang merah (*Allium ascalonicum*). Penelitian dilaksanakan di Desa Gotakan, Kecamatan Panjatan, Kulon Progo dan Laboratorium Ilmu Penyakit Tumbuhan, Departemen Hama dan Penyakit Tumbuhan, Fakultas Pertanian, Universitas Gadjah Mada, Yogyakarta. Perlakuan umbi bawang merah dengan perendaman dan penyemprotan suspensi *Bacillus velezensis*, serta pelapisan Jamur Mikoriza Arbuskular. Penelitian disusun dalam rancangan acak kelompok lengkap (RAKL) dengan tiga ulangan. Parameter pengamatan adalah tinggi tanaman, jumlah daun, berat segar dan berat kering umbi, jumlah umbi, intensitas dan insidensi penyakit, persentase umbi terinfeksi dan luas infeksi umbi setelah diinokulasi dengan *Fusarium solani*. Hasil penelitian menunjukkan bahwa aplikasi suspensi *Bacillus velezensis* mampu meningkatkan tinggi tanaman dan jumlah daun serta mampu menekan perkembangan penyakit tanaman bawang merah, serta meningkatkan ketahanan umbi hasil panen terhadap infeksi *Fusarium solani*. Pelapisan Jamur Mikoriza Arbuskular dan kombinasi aplikasi *B. velezensis* dan pelapisan JMA mampu meningkatkan tinggi tanaman, serta menurunkan tingkat kerusakan tanaman maupun umbi hasil panen akibat infeksi OPT.

Kata kunci : *Bacillus velezensis*, bawang merah, Jamur Mikoriza Arbuskular (JMA),
Kerusakan, Organisme Pengganggu Tumbuhan

ABSTRACT

Shallots production in Indonesia has problems due to the presence of Plant Pest Organisms. Therefore, as an effort to overcome these problems, *Bacillus velezensis* and Arbuscular Mycorrhizal Fungi were applied to seed treatment before planting. The purpose of this study was to determine the effect of the application of Arbuscular Mycorrhizal Fungi and *Bacillus velezensis* on the growth and health of shallot (*Allium ascalonicum*) plants. The research was carried out in Gotakan Village, Panjatan District, Kulon Progo and the Laboratory of Plant Diseases, Department of Pests and Plant Diseases, Faculty of Agriculture, Gadjah Mada University, Yogyakarta. Treatment of shallot bulbs by soaking and spraying *Bacillus velezensis* suspension, and coating of Arbuscular Mycorrhizal Fungi. The study was arranged in a completely randomized block design (RAKL) with three replications. Parameters observed were plant height, number of leaves, fresh and dry weight of bulbs, number of bulbs, intensity and incidence of disease, percentage of infected bulbs and bulb infection area after inoculation with *Fusarium solani*. The results showed that the application of *Bacillus velezensis* suspension was able to increase plant height and number of leaves and was able to suppress the development of shallot plant diseases, as well as increase the resistance of crop bulbs to *Fusarium solani* infection. Arbuscular mycorrhizal fungus coating and the combination of *B. velezensis* application and JMA coating were able to increase plant height, and reduce the level of damage to crops and bulbs due to pest infection.

Keywords : *Bacillus velezensis*, shallots, Arbuscular Mycorrhizal Fungus (AMF), damage, plant pest organism