

RINGKASAN

Padi merupakan komoditas utama dalam menyokong pangan masyarakat di Indonesia. Produksi padi di Indonesia mengalami penurunan pada tahun 2018 sedangkan permintaan beras meningkat setiap tahun. Petani umumnya menggunakan pupuk dan pestisida kimia yang dapat memberikan dampak negatif jika digunakan terus-menerus. Upaya untuk meningkatkan produktivitas dan mengurangi penggunaan bahan kimia adalah dengan pemanfaatan bahan-bahan organik seperti aplikasi metabolit sekunder jamur entomopatogen melalui pendekatan teknik budidaya pertanian organik atau SRI. Penelitian ini bertujuan untuk: (1) mengetahui pengaruh teknik budidaya dan aplikasi metabolit sekunder jamur entomopatogen terhadap pertumbuhan dan hasil tanaman padi, (2) mengetahui teknik budidaya dan aplikasi metabolit sekunder jamur entomopatogen yang tepat untuk meningkatkan pertumbuhan dan hasil tanaman padi.

Penelitian ini dilaksanakan di Desa Brobot, Kecamatan Bojongsari, Kabupaten Purbalingga dan Laboratorium Agronomi dan Hortikultura Fakultas Pertanian, Universitas Jenderal Soedirman pada bulan Maret sampai Juli 2019. Penelitian ini menggunakan Rancangan Petak Tersarang, teknik budidaya sebagai faktor sarang dan metabolit sekunder jamur entomopatogen sebagai faktor yang tersarang, masing-masing perlakuan diulang empat kali. Perlakuan yang digunakan pada Rancangan petak tersarang adalah Insektisida dalam teknik budidaya konvensional, metabolit sekunder Isolat Cipete dalam teknik budidaya SRI, metabolit sekunder Isolat Papringan dalam teknik budidaya SRI, metabolit sekunder Isolat Pasir Kulon dalam teknik budidaya SRI, metabolit sekunder Isolat Kalisalak dalam teknik budidaya SRI, metabolit sekunder Isolat Cipete dalam teknik budidaya Organik, metabolit sekunder Isolat Papringan dalam teknik budidaya Organik, metabolit sekunder Isolat Pasir Kulon dalam teknik budidaya Organik, metabolit sekunder Isolat Kalisalak dalam teknik budidaya Organik. Variabel yang diamati adalah tinggi tanaman, jumlah anakan total, jumlah daun, panjang malai, jumlah anakan produktif, jumlah gabah per malai, persentase jumlah gabah isi, bobot gabah per rumpun, bobot 1.000 biji, bobot gabah per petak efektif 1 m².

Hasil penelitian menunjukkan bahwa teknik budidaya dan aplikasi metabolit sekunder jamur entomopatogen memberikan pengaruh terhadap komponen pertumbuhan dan hasil kecuali persentase jumlah gabah isi. Aplikasi metabolit sekunder Isolat Pasir kulon dalam teknik budidaya SRI mampu meningkatkan jumlah daun sebesar 47,28%, jumlah anakan total sebesar 12,90%, jumlah anakan produktif sebesar 13,57%, bobot gabah per rumpun sebesar 57,70% sedangkan perlakuan metabolit sekunder Isolat Papringan dalam teknik budidaya SRI mampu meningkatkan bobot 1.000 biji sebesar 17,46% dibandingkan dengan teknik budidaya konvensional.

SUMMARY

Rice is the main commodity in supporting people's food in Indonesia. Production of rice in Indonesia experienced a decline in the year 2018, while demand for rice increases every year. Farmers generally use chemical fertilizers and pesticides which can have a negative impact if used continuously. Efforts to increasing productivity and reducing the use of chemicals is by utilizing organic materials such as the application of secondary metabolites of entomopathogenic fungi through the approach of organic farming cultivation techniques or SRI. This research aimed to: (1) know the effect of cultivation techniques and application secondary metabolites of entomopathogenic fungi on the growth and yield of rice plant, (2) know the best of cultivation technique and application secondary metabolite of entomopathogenic fungi for growth and yield of rice plant.

This research was conducted in Brobot Village, Bojongsari Subdistrict, Purbalingga Regency and Laboratory of Agronomy and Horticulture Agriculture Faculty, Jenderal Soedirman University at March until July 2019. This research using Nested Design, cultivation techniques as a nest factor and secondary metabolites of entomopathogenic fungi as a factor that was nested, each treatment was repeated four times. The treatments used Nested Design is Insecticides in conventional cultivation technique, secondary metabolite of Cipete isolate in SRI cultivation technique, secondary metabolite of Papringan isolate in SRI cultivation technique, secondary metabolite of Pasir Kulon isolate in SRI cultivation technique, secondary metabolite of Kalisalak isolate in SRI cultivation technique, secondary metabolite of Cipete isolate in Organic cultivation technique, secondary metabolite of Papringan isolate in Organic cultivation technique, secondary metabolite of Pasir Kulon isolate in Organic cultivation technique, secondary metabolite of Kalisalak isolate in Organic cultivation technique. Variables observed were plant height, number of total tillers, number of leaves, length of panicle, number of productive tillers, number of grains per panicle, percentage of the amount of grain fill, weight of grain per clump, 1.000 seed weight, weight of grain per plot effective 1 m².

The results showed that the cultivation technique and application secondary metabolite of entomopathogenic fungi gave effect to the components of growth and results except for the percentage of the amount of grain fill. Application secondary metabolite of Pasir Kulon in SRI technique was able to increase number of leaves by 47,28%, number of total tillers by 12,90%, number of productive tillers by 13,57%, weight of grain per clump by 57,70% while the application of secondary metabolite of Papringan in SRI technique was able to increase weight 1.000 seeds by 17,46% compared to conventional cultivation technique.