

RINGKASAN

Aren (*Arenga pinnata* (Wurmb.) Merr.) termasuk jenis tanaman palma yang serbaguna dan tersebar hampir di seluruh wilayah Indonesia. Aren merupakan tanaman yang memiliki nilai ekonomi tinggi karena semua bagian tanamannya dapat diolah menjadi produk pangan maupun non pangan. Salah satu kendala yang dapat dijumpai pada budidaya aren yaitu serangan organisme pengganggu tanaman (OPT) seperti alga *Cephaleuros virescens* penyebab penyakit karat daun aren. Alternatif pengendalian patogen yang dapat dilakukan adalah dengan aplikasi biopestisida seperti Bio P60 dan Bio T10. Penelitian ini bertujuan untuk mengetahui potensi aplikasi Bio P60 dan Bio T10 dalam meningkatkan ketahanan bibit aren serta kemampuannya dalam memacu pertumbuhan aren yang terinfeksi alga *C. virescens*.

Penelitian dilaksanakan di Desa Sokaraja Tengah, Kecamatan Sokaraja, Kabupaten Banyumas dari bulan Oktober sampai Desember 2021. Penelitian ini dilaksanakan dengan menggunakan Rancangan Petak Terbagi (RPT) dalam RAKL dengan dua faktor yang memiliki taraf masing-masing 4 dan akan diulang sebanyak 6 kali. Percobaan terdiri dari 2 faktor, faktor pertama yaitu pemberian naungan yang ditempatkan sebagai petak utama (main plot) dan pemberian pestisida ditempatkan sebagai anak petak (sub plot). Main plot terdiri dari aplikasi naungan dan non naungan sedangkan sub plot terdiri dari aplikasi kontrol tanpa pemberian pestisida, aplikasi Bio P60, Bio T10, serta aplikasi PHYSAN 20TM. Variabel yang diamati terdiri dari komponen patosistem yang meliputi intensitas penyakit dan nilai *area under disease progress curve* (AUDPC), serta komponen pertumbuhan yang terdiri dari pertambahan tinggi tanaman, jumlah daun, dan luas daun bibit aren. Data hasil percobaan dianalisis dengan menggunakan analisis anova pada taraf kepercayaan 95%, jika hasil yang didapat menunjukkan pengaruh nyata, maka dilanjutkan uji DMRT (*Duncan's Multiple Range Test*) pada taraf kesalahan 5%.

Hasil penelitian menunjukkan bahwa aplikasi Bio P60 dan Bio T10 dapat menghambat pertumbuhan patogen *C. virescens* ditandai dengan rendahnya nilai intensitas penyakit dan nilai AUDPC dibanding dengan perlakuan kontrol. Aplikasi Bio P60 dan Bio T10 belum mampu meningkatkan pertumbuhan tinggi dan jumlah bibit aren namun mampu meningkatkan luas daun bibit aren. Aplikasi naungan mampu untuk menghambat pertumbuhan alga *C. virescens* dan mampu meningkatkan luas daun bibit aren.

SUMMARY

Sugar palm (Arenga pinnata (Wurmb.) Merr.) is a versatile type of palm plant that is spread in almost all parts of Indonesia. Sugar palm is a plant that has high economic value because all parts of the plant can be processed into food and non-food products. One of the obstacles that can be encountered in the cultivation of sugar palm is the attack of plant pest organisms such as the algae Cephaleuros virescens which causes palm leaf rust disease. Alternative pathogen control that can be done is the application of biopesticides such as Bio P60 and Bio T10. This study aims to determine the potential application of Bio P60 and Bio T10 in increasing the resistance of sugar palm seedlings and their ability to stimulate the growth of sugar palm infected with C. virescens algae.

The study was carried out in Sokaraja Tengah Village, Sokaraja District, Banyumas Regency from October to December 2021. This research was carried out using a Split Plot Design in the Randomized Complete Block Design (RCBD) with two factors that have a level of 4 each and will be repeated 6 times. The experiment consisted of 2 factors, the first factor was the provision of shade which was placed as the main plot (main plot) and the application of pesticides was placed as a sub-plot (sub plot). The main plot consisted of shading and non-shading applications, while the sub plot consisted of control applications without pesticide application, Bio P60, Bio T10, and PHYSAN 20TM applications. The observed variabls consisted of pathosystem components including disease intensity and area under disease progress curve (AUDPC) values, as well as growth components consisting of increase in plant height, number of leaves, and leaf area of sugar palm seedlings. The experimental data were analyzed using ANOVA analysis at a 95% confidence level, if the results obtained showed a significant effect, then continued with the DMRT (Duncan's Multiple Range Test) test at an error level of 5%.

The value of disease intensity and AUDPC of leaf rust applied by Bio P60 and Bio T10 was lower than control plants, this proves that Bio P60 and Bio T10 can inhibit the growth of the pathogen C. virescens that causes palm leaf rust disease. The application of Bio P60 and Bio T10 was not able to increase the growth of height and sugar palm shoots but was able to increase the leaf area of sugar palm seedlings. Shade application was able to inhibit the growth of C. virescens algae and can increase the leaf area of the sugar palm seedlings.