

RINGKASAN

Jagung (*Zea mays* L.) adalah tanaman pangan utama di Indonesia yang berperan penting dalam penyediaan karbohidrat. Namun, jagung menghadapi ancaman serius dari hama *Spodoptera frugiperda*, yang dapat merusak tanaman di semua tahap pertumbuhannya, mengurangi hasil panen baik kuantitas maupun kualitas. Penggunaan insektisida kimia yang berlebihan juga berisiko menyebabkan resistensi hama dan dampak negatif bagi lingkungan. Penelitian ini bertujuan untuk mengevaluasi efektivitas media tumbuh dalam mendukung pertumbuhan jamur entomopatogen *Fusarium oxysporum* dan dampaknya terhadap mortalitas *S. frugiperda*, serta memberikan alternatif pengendalian hama yang lebih ramah lingkungan.

Penelitian dilaksanakan di Laboratorium Perlindungan Tanaman Universitas Jenderal Soedirman. Metode yang digunakan meliputi pengamatan terhadap diameter koloni jamur *F. oxysporum*, kerapatan konidia, mortalitas *S. frugiperda*, waktu kematian 50% (WK₅₀), dan kemampuan makan hama. Diameter koloni jamur diukur setiap 24 jam selama 7 hari, sedangkan kerapatan konidia dihitung menggunakan *hemocytometer*. Mortalitas hama diukur dengan menghitung jumlah ulat yang mati setelah aplikasi jamur, dan waktu kematian dicatat untuk menentukan WK₅₀. Kemampuan makan *S. frugiperda* diukur dengan membandingkan berat pakan sebelum dan setelah diberikan kepada ulat.

Hasil penelitian menunjukkan bahwa jamur *F. oxysporum* yang diperbanyak pada media *Potato Dextrose Agar* (PDA) mencapai rerata diameter koloni sebesar 8,862 cm dan kerapatan konidia sebesar $1,14 \times 10^8$. Perlakuan dengan media jagung pecah menunjukkan efektivitas tertinggi dalam menyebabkan mortalitas *S. frugiperda*, mencapai 78,33%. Selain itu, waktu kematian 50% (WK₅₀) larva *S. frugiperda* juga paling cepat pada perlakuan media jagung pecah, yaitu sebesar 5,17 hari. Sementara itu, kemampuan makan *S. frugiperda* paling tertekan pada perlakuan media tepung beras, dengan nilai aktivitas makan yang rendah pada hari ke-5, ke-11, dan ke-12.

SUMMARY

Maize (*Zea mays* L.) is a major food crop in Indonesia that plays an important role in providing carbohydrates. However, maize faces a serious threat from the pest *Spodoptera frugiperda*, which can damage plants at all stages of their growth, reducing yields in both quantity and quality. The overuse of chemical insecticides also risks causing pest resistance and negative impacts on the environment. This study aims to evaluate the effectiveness of growing media in supporting the growth of the entomopathogenic fungus *Fusarium oxysporum* and its impact on *S. frugiperda* mortality, as well as providing an alternative pest control that is more environmentally friendly.

The research was conducted at the Plant Protection Laboratory of Jenderal Soedirman University. The methods used included observations of *F. oxysporum* colony diameter, conidia density, *S. frugiperda* mortality, 50% mortality time (WK₅₀), and pest feeding ability. Fungal colony diameter was measured every 24 hours for 7 days, while conidia density was calculated using a hemocytometer. Pest mortality was measured by counting the number of caterpillars that died after fungal application, and the time of death was recorded to determine WK₅₀. Feeding ability of *S. frugiperda* was measured by comparing the weight of feed before and after it was given to the caterpillars.

The results showed that *F. oxysporum* fungi propagated on *Potato Dextrose Agar* (PDA) media reached a mean colony diameter of 8.862 cm and conidia density of 1.14×10^8 . The treatment with broken corn media showed the highest effectiveness in causing mortality of *S. frugiperda*, reaching 78.33%. In addition, the 50% mortality time (WK₅₀) of *S. frugiperda* larvae was also the fastest in the broken corn media treatment, which amounted to 5.17 days. Meanwhile, the feeding ability of *S. frugiperda* was most suppressed in the rice flour media treatment, with low feeding activity values on days 5, 11, and 12.