

RINGKASAN

Perubahan perilaku mencari makan akibat resistensi dapat menyebabkan efektivitas *gel bait* atau umpan toksik menurun dan mempersulit pengendalian kecoak jerman (*Blatella germanica*) pada lingkungan manusia. Penelitian ini memiliki tujuan guna mengetahui (1) perilaku mencari makan antara kecoak jerman strain resisten (Semarang) dan strain *susceptible* (VCRU) meliputi: latensi, frekuensi, dan durasi; (2) mengetahui perbedaan antara perilaku mencari makan yang meliputi latensi, frekuensi, dan durasi antara kecoak jerman jantan, betina, dan nimfa pada masing-masing strain; (3) mengetahui hubungan antara frekuensi kunjungan pada umpan dan durasi berada pada umpan; (4) mengetahui puncak aktivitas makan antara strain Semarang dan strain VCRU.

Penelitian dilaksanakan di Laboratorium Entomologi dan Parasitologi Fakultas Biologi Universitas Jenderal Soedirman. Prosedur penelitian mengadopsi metode eksperimental dengan desain Rancangan Acak Lengkap, memanfaatkan Teknik *continuous sampling*. Studi ini melibatkan dua strain kecoak jerman: strain *Vector Control Research Unit* (VCRU) dan strain Semarang. Setiap strain direpresentasikan oleh tiga individu: jantan, betina, dan nimfa. Setiap perlakuan diulang sebanyak empat kali. Pemantauan dilakukan selama periode tujuh hari dengan bantuan sistem *Closed Circuit Television* (CCTV). Variabel independen yang dikaji adalah strain kecoak jerman, sedangkan variabel dependen adalah perilaku mencari makan (*foraging*). Parameter yang diamati meliputi latensi menuju umpan, frekuensi kunjungan pada umpan dan durasi berada di umpan. Data penelitian berupa latensi, frekuensi dan durasi diuji normalitasnya menggunakan Kolmogorov-Smirnov. Data latensi tergolong tidak normal sehingga dianalisis secara non-parametrik menggunakan uji Kruskal-Wallis, sedangkan data frekuensi dan durasi tergolong normal sehingga dianalisis dengan *Analysis of Variance* pada signifikansi $p < 0,05$, selanjutnya data yang terdapat perbedaan nyata dilanjutkan dengan uji lanjut *Duncan Multiple Range Test*. Untuk membandingkan latensi, frekuensi dan durasi antara strain Semarang dan strain VCRU dianalisis menggunakan Uji T-test. Pada data frekuensi dan durasi juga dilakukan uji korelasi menggunakan Korelasi Pearson (*Pearson Product Moment*). Seluruh data kuantitatif dianalisis menggunakan *software* SPSS ver.27.

Hasil penelitian menunjukkan adanya perbedaan waktu latensi menuju umpan antar strain ($p < 0.05$), dimana strain VCRU lebih cepat merespon umpan, namun pada frekuensi kunjungan pada umpan dan durasi berada pada umpan tidak menunjukkan perbedaan antar strain ($p > 0.05$). Individu jantan, betina, dan nimfa tidak memengaruhi waktu latensi menuju umpan baik strain Semarang maupun strain VCRU, frekuensi dan durasi antara jantan, betina, dan nimfa memiliki perbedaan pada strain Semarang namun tidak pada strain VCRU. Terdapat hubungan antara frekuensi kunjungan dan durasi waktu yang dibutuhkan saat berada pada umpan. Semakin tinggi frekuensi kunjungan pada umpan, maka semakin banyak durasi yang dibutuhkan saat berada pada umpan. Strain Semarang menunjukkan 3 puncak aktivitas makan pada pukul 17.00 – 20.00 WIB, 20.00 – 23.00 WIB dan 02.00 – 05.00 WIB, sedangkan strain VCRU menunjukkan 2 puncak aktivitas makan pada pukul 17.00 – 20.00 WIB dan 02.00 – 05.00 WIB.

Kata kunci: durasi, frekuensi, kecoak jerman, latensi, perilaku mencari makan

SUMMARY

Changes in foraging behavior caused by resistance may reduce the effectiveness of gel baits or toxic baits and complicate the control of German cockroaches (*Blatella germanica*) in human environments. This study aims to: (1) investigate foraging behavior between resistant (Semarang) and susceptible (VCRU) German cockroach strains, including latency, frequency, and duration; (2) determine differences in foraging behavior (latency, frequency, duration) between male, female, and nymph German cockroaches within each strain; (3) examine the relationship between bait visitation frequency and duration spent on bait; (4) identify peak feeding activity periods between Semarang and VCRU strains.

The research was conducted at the Entomology and Parasitology Laboratory, Faculty of Biology, Jenderal Soedirman University. The research procedure adopted an experimental method with a Completely Randomized Design, utilizing continuous sampling technique. This study involved two strains of German cockroach: the Vector Control Research Unit (VCRU) strain and the Semarang strain. Each strain was represented by three individuals: male, female, and nymph. Each treatment was replicated four times. Monitoring was carried out over a seven-day period using a Closed-Circuit Television (CCTV) system. The independent variable examined was the German cockroach strain, while the dependent variable was foraging behavior. The observed parameters included latency to bait, visit frequency to bait, and duration at bait. Latency, frequency, and duration data were tested for normality using the Kolmogorov-Smirnov test. Latency data were non-normal and thus analyzed non-parametrically using the Kruskal-Wallis test, whereas frequency and duration data were normally distributed and analyzed using Analysis of Variance at a significance level of ($p < 0.05$). Data showing significant differences underwent Duncan's Multiple Range Test as a post-hoc analysis. To compare latency, frequency, and duration between the Semarang and VCRU strains, a T-test was employed. Correlation analysis for frequency and duration data was performed using Pearson's Product-Moment Correlation. All quantitative data were analyzed using SPSS version 27.

The results showed a significant difference in latency to the bait between strains ($p < 0.05$), with the VCRU strain responding to the bait more quickly. However, no differences were found in the frequency of visits to the bait or the duration spent on the bait. Male, female, and nymphal individuals did not influence the latency time to the bait in either the Semarang or VCRU strains. Differences in frequency and duration among males, females, and nymphs were observed in the Semarang strain but not in the VCRU strain. There was a relationship between the frequency of visits and the duration spent on the bait. The higher the frequency of visits to the bait, the longer the duration spent on it. The Semarang strain showed three peaks of feeding activity at 17:00–20:00 pm, 20:00–23:00 pm, and 02:00–05:00 am, while the VCRU strain exhibited two feeding activity peaks at 17:00–20:00 pm and 02:00–05:00 am.

Keywords: *duration, foraging behavior, frequency, german cockroach, latency*