

**BIOLOGICAL ASPECTS OF COCOA POD BORER  
*Conopomorpha cramerella* (Lepidoptera: Gracillariidae) UNDER  
CONTROLLED CONDITIONS**

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Bogor, January 2025

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## ABSTRAK

NURUL MAGFIRAH. Beberapa Aspek Biologi Penggerek Buah Kakao *Conopomorpha cramerella* (Lepidoptera: Gracillariidae) dalam Kondisi Terkendali. Dibimbing oleh DEWI SARTIAMI dan JEROME NIOGRET.

Hama penggerek buah kakao (PBK), *Conopomorpha cramerella*, CPB menyebabkan kehilangan hasil kakao berkisar antara 20% hingga 70% di Indonesia. Pemahaman mengenai parameter biologi PBK sangat penting dalam pengelolaan hama. Penelitian ini memberikan informasi gejala serangan hama PBK, dan parameter biologi seperti lama berpupa, ukuran tubuh imago, umur imago, kemampuan terbang imago, dan fekunditas imago betina. Pengamatan lapangan terhadap serangan larva PBK dilakukan pada semua stadia perkembangan buah kakao klon M01. Buah kakao yang terserang dikumpulkan dari lahan kebun kakao dan dibawa ke laboratorium untuk dipelihara sampai kemunculan larva instar akhir yang kemudian berpupa. Lama berpupa hingga kemunculan imago dicatat. Fekunditas betina diukur setelah kopulasi. Kemampuan terbang dilakukan dengan mengukur jarak dan waktu yang ditempuh dari titik awal lepas landas hingga mendarat. Hasil penelitian menunjukkan bahwa buah kakao muda yang diserang oleh PBK menunjukkan kulit buah muda yang menguning. Durasi pupa berkisar antara 6 hingga 10 hari. Panjang tubuh imago jantan berkisar 5,4-6,4 cm dan betina berkisar 4,7-6,7 cm. Rata-rata jarak terbang dan waktu tempuh betina adalah  $392,5 \pm 124,4$  cm dan  $30,6 \pm 16,6$  detik, jantan  $379,7 \pm 118,7$  cm dan  $39,1 \pm 26,5$  detik. Jumlah telur yang diletakkan oleh betina rata-rata  $114 \pm 91$  butir ( $n=14$ ). Jantan berukuran lebih kecil dan melakukan penerbangan lebih lama daripada betina.

Kata kunci: fekunditas, gejala serangan, kemampuan terbang, siklus hidup

## ABSTRACT

NURUL MAGFIRAH. Biological Aspects of Cocoa Pod Borer *Conopomorpha cramerella* (Lepidoptera: Gracillariidae) Under Controlled Conditions. Supervised by DEWI SARTIAMI and JEROME NIOGRET.

Cocoa pod borer (CPB), *Conopomorpha cramerella* causes cocoa yield losses ranging from 20% to 70% in Indonesia. The study of the biological characteristics of CPB is crucial for pest control management. This research provides information on the symptoms of cocoa pod borer (CPB) attack, and biological parameters such as pupal duration, adult body length, adult lifespan, adult flight ability, and fecundity of female. CPB larval infestation were observed at all pod development stages of cocoa clone M01 in the field. Infested cocoa pods were collected in the field and brought to the laboratory, where the insects were reared until last instar larvae emerged and subsequently pupated. The duration of pupal to adult emergence was recorded. The fecundity of females was measured after copulation. Flight abilities were conducted by measuring the distance and time traveled from the adult take-off's starting point to landing. Results showed that young cocoa pods infested by CPB showed early yellowing of the husk. Pupal duration ranges from 6 to 10 days. The body length of male adults is 5.4 - 6.4 cm and female is 4.7 - 6.7 cm. The average flight distance and travel time of females are  $392.5 \pm 124.4$  cm and  $30.6 \pm 16.6$  seconds, males  $379.7 \pm 118.7$  cm and  $39.1 \pm 26.5$  seconds. The number of eggs laid by females averaged  $114 \pm 91$  eggs (n=14). Males are smaller in size and travel for a longer than the females.

Keywords: fecundity, flight capability, life cycle, symptoms of attack



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**NURUL MAGFIRAH**

Undergraduate Thesis  
In partial fulfillment of the requirements for the degree of  
Bachelor of Agriculture  
at the  
Department of Plant Protection

**DEPARTEMENT OF PLANT PROTECTION  
FACULTY OF AGRICULTURE  
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The author hopes this undergraduate thesis can be useful for further research and the advancement of knowledge.

Bogor, January 2025

*Nurul Magfirah*



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