

**INSECT VISITORS OF ROBUSTA COFFEE (*Coffea canephora*) FROM  
FLOWERING TO FRUIT SETTING**

**THESIS**

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**Indang, Cavite**

**June 2019**



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Undergraduate Thesis  
Submitted to the Faculty of the  
College of Arts and Sciences,  
Cavite State University  
Indang, Cavite

In partial fulfillment  
Of the requirements for the degree  
Bachelor of Science in Biology



00077316

*Insect visitors of robusta coffee (coffea  
canephora) from flowering to fruit setting*  
574 C16 2019  
T-8059

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June 2019



## ABSTRACT

**CANILAO, MA. ELENA O. Insect Visitors of Robusta Coffee (*Coffea canephora*) from Flowering to Fruit setting.** Undergraduate Thesis. Bachelor of Science in Biology, major in General Biology. Department of Biological Sciences. College of Arts and Sciences. Cavite State University, Indang, Cavite. May 2019. Adviser. Prof. Dickson N. Dimero.

This study aimed to assess the insect activity on Robusta coffee from flowering to fruit setting. Observation period was from October 2018 to January 2019 and done at National Coffee Research, Development and Extension Center located at Cavite State University – Main Campus, Indang, Cavite.

Seven species belonging to Formicidae, Apidae and Diptera were observed during the pre-flowering until fruit setting of Robusta coffee. These insect visitors include Black ant (*Dolichoderus thoracicus*), (*Polyrhachis bicolor*), Stingless bees (*Tetragonula birio* Friese), Honeybees (*Apis cerana*), Diptera, Blow fly (*Calliphoridae*), and Carpenter bee (*Xylocopidae*).

The black ant was considered as naturally associated insect and beneficial insect of robusta coffee while *Polyrhachis bicolor* was the natural enemy of other insect. Stingless bees (*Tetragonula birio* Friese), Honeybees (*Apis cerana*), Diptera, Blow fly (*Calliphoridae*), and Carpenter bee were considered as true pollinators of Robusta coffee where they collect nectar/pollen from the flower of robusta coffee.

During pre-flowering stage, at 6:00 A.M of observation, both Black ant and *Polyrhachis bicolor* were numerous. At 12:00 P.M, the number of Black ant decrease while at 2:00 P.M the *Polyrhachis bicolor* decreased. During flowering stage, the pollinators were numerous at 9:00 A.M and Stingless bees had the highest population. The



lowest number of pollinators was observed at 12:00 – 1:00 P.M and Stingless bee was the major pollinator present. Carpenter bee and Blow fly were numerous at 6:00 A.M, *Diptera* was at 7:00 A.M and Honey bee at 1:00 P.M. During fruit setting stage, Black ant was numerous at 6:00 A.M and its number decreased by 2:00 P.M. This was the only insect present on fruit setting stage.

During the pre-flowering stage of Robusta coffee, *Dolichoderus thoracicus* (Black ant) had the highest population count of 811 (80.22%). While on the flowering stage, *Tetragonula biroi* (Stingless bee) had the highest population count of 486 (92.93%). During the fruit setting stage, *Dolichoderus thoracicus* (Black ant) was the only insect visitor present with a population count of 248 (100%).

The mean values for light intensity for the pre-flowering, flowering and fruiting season of Robusta coffee were 4901.14 lux, 4306.22 lux and 3617.95 lux. The mean values for relative humidity for the pre-flowering, flowering and fruiting season of Robusta coffee were 71.15 %RH, 78.39 %RH, 76.52 %RH. The mean values for temperature for the pre-flowering, flowering and fruiting season of Robusta coffee were 28.65 °C, 27.06 °C and 26.74 °C.

The insect visitors of Robusta coffee had weak to negative moderate correlation with light intensity, relative humidity and temperature.



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# INSECT VISITORS OF ROBUSTA COFFEE (*Coffea canephora*) FROM FLOWERING TO FRUIT SETTING

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An undergraduate thesis manuscript submitted to the faculty of the Department of Biological Sciences, College of Arts and Sciences, Cavite State University, Indang, Cavite in partial fulfillment of the requirements for the degree of Bachelor of Science in Biology, major in General Biology with the Contribution No. T-CAS-2019-0001 Prepared under the supervision of Prof. Dickson N. Dimero.

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## INTRODUCTION

Coffee is one of the most important crop in the Philippines and is produced in the towns of Amadeo, General Emilio Aguinaldo, Indang, Mendez, and Silang in Cavite (Alvindia *et al.*, 2010; Panganiban, 1998). It serves a good source of income for farmers and land owners. *Coffea canephora* (robusta coffee) is one of the most cultivated varieties of coffee, which represents thirty to thirty-four percent (30-34%) of global coffee production (dos Santos *et al.*, 2015; Cao *et al.*, 2014; Ngo *et al.*, 2011). This variety can grow more than twelve (12) meters in height. It is known as sun coffee and was cultivated under lower elevation. Large umbrella shaped growth is used to characterize Robusta coffee. Leaves vary in shape with scalloped edge and paler green in color, flowers are larger than *Coffea arabica*, and ripe berries are small and blood-red in color. It is mostly used for instant coffee. It has high caffeine content and strong character that are used mostly for