



**ANTS AND BEETLES COLONIZATION ON COVERED AND UNCOVERED RABBIT
CARCASSES IN PUNCAK ALAM, SELANGOR**

By

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DECLARATION

“I hereby declare that this thesis is my original work and has not been submitted previously or currently for any other degree at UiTM or any other institutions”.



(Syafiqah Sidek)

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ABSTRACT

ANTS AND BEETLES COLONIZATION ON COVERED AND UNCOVERED RABBIT CARCASSES IN PUNCAK ALAM, SELANGOR

Forensic entomology is the study of insect colonization on decomposing body to estimate the time since death or post mortem interval (PMI) in forensic cases. Other than Diptera (flies), Coleoptera (beetles) and Formicidae (ants) are the main arthropods in contributing the data in forensic entomology. However, the insects colonization are influenced by the environmental data such as temperature, humidity and soil. This study was conducted in order to provide the new data of ants and beetles colonization for forensic cases in Malaysia. The aims of this study are to investigate the ants and beetles colonization on covered and uncovered carcasses and to compare the species of ants and beetles collected between the covered and uncovered carcasses. This study was conducted in Puncak Alam, Malaysia at a location of 3°12'23.9"N, 101°27'00.6"E. Uncovered carcasses were exposed and covered carcasses were placed in the bag. The ants and beetles visited the carcasses were collected. Pitfall traps were used to collect the ants in each cage, while beetles were collected manually by forceps. Environmental data such as humidity, temperature and light intensity were recorded. A total of 1243 individuals from 11 species of ants were collected from uncovered carcasses and 1394 individuals from 9 species of ants were collected from covered carcasses in this study. Also, there were only 25 individuals from six species belonging four families of Coleoptera were found for both uncovered and covered carcasses. This study showed that there was difference in total frequency of ants and beetles species on between uncovered and covered carcasses. The information from this study can provide the useful data in estimation of post mortem interval in Puncak Alam area.

CHAPTER 1

INTRODUCTION

Insects are the smallest animals but the largest group in arthropods. The insects can be differentiated from the other arthropods by the number of legs and their body parts. They are characterized by having three pairs of legs and a body that is divided into three regions which are head, thorax and abdomen. The insects also may have the wings and a pair of antenna. The other classes of arthropods can have more than three pairs of legs and never have wings as the insects. For instance, the spiders are not called as insect as they have four pairs of legs. The insects have no bones, however their body is fully covered by the hard skin, or cuticles that made of chitin, or called as exoskeleton, to support and strengthen their body. Millions of species of insects may exist in this planet, however not all of them have been described and named.

Forensic entomology can be defined as the use of arthropod or insects in estimating the postmortem interval (PMI) or time since death (Vitta, Pumidonming, Tangchaisuriya, & Poodendean, 2007) based on the development or successional patterns of arthropods on the carcass (Matuszewski, Bajerlein, Konwerski, & Szpila, 2008). The forensic entomologists can predict the longest time of death based on the composition of insects on decomposing human corpse (Ozdemir & Sert, 2009). Other than estimation of postmortem interval PMI, entomological knowledge also may reveal the manner or location of death. Decomposition is a normal, natural and necessary process for the organic material including corpse, dead plant or animal, to return to the ecosystem (Koc, 2003). Stages of decomposition of human body can be classified into four stages which are fresh, bloated, decay and dry (Goyal, 2012).