A COMPARATIVE STUDY OF DIPTERAN DIVERSITY AND THEIR
SUCCESSION ON DECAYING CARRION OF TWO DIFFERENT
HABITAT TYPES IN PERLIS

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2007

Comparative study of dipteran diversity and their succession in rabbit carrion at two different coastal areas in Terengganu and Negeri Sembilan / Sharmila D/O Elankoovan.

COMPARATIVE STUDY OF DIPTERAN DIVERSITY AND THEIR SUCCESSION IN RABBIT CARRION AT TWO DIFFERENT COASTAL AREAS IN TERENGGANU AND NEGERI SEMBILAN

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FAKULTI SAINS DAN TEKNOLOGI
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2007

COMPARATIVE STUDY OF DIPTERAN DIVERSITY AND THEIR SUCCESSION IN RABBIT CARRION AT TWO DIFFERENT COASTAL AREAS IN TERENGGANU AND NEGERI SEMBILAN

By

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Research Report submitted in partial requirement of
the requirements for the degree of
Bachelor of Applied Science (Biodiversity Conservation and Management)

Department of Biological Sciences
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2007

This project should cited as:

Sharmila E.S. 2007. Comparative Study of Dipteran Diversity and Their Succession in Rabbit Carrion at Two Different Coastal Areas in Terengganu and Negeri Sembilan. Undergraduate thesis, Bachelor of Applied Science in Conservation and Biodiversity Management, Faculty of Science and Technology, Universiti Malaysia Terengganu, Terengganu. 55p.

UNIVERSITI MALAYSIA TERENGGANU

JABATAN SAINS BIOLOGI
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UNIVERSITI MALAYSIA TERENGGANU

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PROJEK PENYELIDIKAN I DAN II
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ACKNOWLEDGEMENTS

Firstly, I would like to take this golden opportunity to express my gratitude to my supervisor Madam Wahizatul Afzan Binti Azmi. As for her continuous guidance and constructive comments that have helped me in improving the contents while review my thesis. I would like to thank the lab assistant, En.Muhammad B. Embong (Histology Laboratory) for his help and assistance that enable me to complete my lab work for thesis. Not forgetting Haji Muhammad Razali Salam (Biology Laboratory) for his kind help in providing me the laboratory apparatus and allowing me to use the laboratory. Besides that I would also like to thank the Institute of Medical Research (IMR) staff especially Dr. Lee Han Lim, Head of Entomology unit and Dr. Nazni Wasi Ahmad for assisting me out in the identification of Dipterans. I also wish to convey my greatest appreciation to my beloved parents, Mr.Elankoovan and Madam Saroja for their loving encouragement, financial support and blessing as well as to continuous support in completing my thesis. I cannot adequately express my gratitude to my siblings Miss Elan Selvi, Miss Anu Ratha and Miss Gowri Prabagari for their help and support through out my study. Gratitude also goes out to my dearest husband Mr.TachanaMoorthy for his loving encouragement. No thesis could be accomplished without the tremendous help from him during sampling period. Last but not least, I would like to thank my course mates especially Sri Shasita A/P Ratnam and Christopher Inbaraja and friends especially Kumari Geetha a/p Muniandy, Usha and Maari Shammugasamy and juniors who made these years of study a memorable one in my life.

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LIST OF ABBREVIATIONS

cm	-	centimeter
kg	-	kilogram
KOH	-	potassium hydroxide
mm	-	millimeter
PMI	-	postmortem interval
RH	-	relative humidity
sp.	-	species

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ABSTRACT

A comparison study of dipteran diversity and succession was conducted at Pantai Tok Jembal, Kuala Terengganu, east coastal and Pantai Port Dickson, west coastal area using rabbit carrions as representatives. This study aimed to determine dipteran diversity and succession over decomposition period. The entomofauna in the corpse were compared and the dipteran species and diversity at both coastal areas were determined. A total of 16 species belonging to 12 families and three orders (Diptera, Coleoptera, Hymenoptera) were identified in present study with 13 species occurred in Pantai Tok Jembal and 14 species in Port Dickson. 11 species were general species occurring in both coastal areas. They facilitated decomposition and formed distinct faunal succession; Diptera were the pioneer colonizes followed by Coleoptera whereas Hymenoptera were present in almost all the stages. *Chrysomya megacephala, Chrysomya rufifacies, Musca domestica* and *Sarcophaga sp.* were the dominant species identified. The successful of dipteran succession depend on factors such as temperature, humidity condition and presence of light. Insect development was documented to be climatologically dependent whereby; humidity inhibited their colonization and high temperatures, over 30^{o} C shorten their life histories. In present study, the occurrences of Diptera were uneven in both coastal areas. However, only *Azerelius sp.* and *Diglotta sp.* have precise geographical origin and can be completely excluded from occurring in west Malaysia. Thus, the presence of these insects in a corpse may give early clue that the corpse original found is not West Malaysia. Major application of the succession pattern and development is to estimate Postmortem Interval (PMI). Findings of this study are significant to aid investigations with entomological evidence and in the same time improve forensic entomology database which is lack in our region.

KAJIAN PERBANDINGAN KEPELBAGAIAN DIPTERA DAN SESARANNYA SECARA TURUTAN PADA BANGKAI ARNAB DI DUA KAWASAN PANTAI BERBEZA DI TERENGGANU DAN NEGERI SEMBILAN

ABSTRAK

Satu kajian perbandingan kepelbagaian Diptera dan sesarannya pada bangkai arnab telah dijalankan di dua kawasan pantai yang berbeza iaitu Pantai Tok Jembal,Terengganu dan Pantai Port Dickson, Negeri Sembilan. Kajian ini dijalankan untuk menentukan kepadatan dan sesaran Diptera berdasarkan kadar pereputan bangkai arnab.Komposisi serangga lain yang diperolehi daripada bangkai telah ditentukan, manakala perbandingan spesies dan kepadatan Diptera antara kedua-dua kawasan pantai turut ditentukan. Sebanyak 16 spesies daripada 12 famili dan tiga order serangga (Diptera, Coleoptera dan Hymenoptera) telah berjaya dikenalpasti sepanjang tempoh kajian. Tiga belas spesies telah direkodkan di Pantai Tok Jembal dan 14 species direkodkan di Pantai Port Dickson. Sebelas spesies merupakan spesies umum yang telah dijumpai pada kedua-dua kawasan tersebut. Daripada kajian ini terdapat perbezaan di antara masa kedatangan spesies tersebut ke bangkai. Kumpulan pertama yang sampai ke bangkai adalah Diptera, kemudian diikuti oleh Coleoptera dan Hymenoptera hadir hampir pada semua peringkat pereputan bangkai. *Chrysomya megacephala, Chrysomya rufifacies, Musca domestica* dan *Sarcophaga sp.* adalah antara spesies dominan yang dikenalpasti. Kepadatan dan sesaran semua spesies ini sangat dipengaruhi oleh faktor-faktor seperti suhu persekitaran, kelembapan dan keamatan cahaya.Perkembangan semua spesies ini sangat bergantung pada keadaan cuaca tetapi pengkolonian dihalang oleh kelembapan yang keterlaluan dan suhu tinggi yang melebihi 30^{o} C memendekkan jangka hayat spesies-spesies tersebut.Aplikasi ini amat berguna untuk menentukan selang waktu antara kematian (PMI). Penemuan kajian ini boleh digunakan sebagai maklumat tambahan bagi kajian lanjut dalam menentukan selang waktu antara kematian.