





**ECTOPARASITE COMPOSITION OF BATS AT MANGROVE AREAS OF KOLEJ  
UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA (KUSTEM),  
TERENGGANU.**

**By**

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Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: ECTOPARASITE COMPOSITION OF BATS AT MANGROVE AREAS OF KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA (KUSTEM), TERENGGANU oleh Joann Christine Luruthusamy no. matrik UK 7833 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sabahagian daripada keperluan memperolehi Ijazah Sains Gunaan - Pemuliharaan dan Pengurusan Biodiversiti, Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

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## LIST OF ABBREVIATIONS

KUSTEM	-	Kolej Universiti Sains dan Teknologi Malaysia.
gm	-	gram
mm	-	millimeter
DPX	-	Distrene-plasticizer-xylene
SPSS	-	Statistical Process for Social Sciences
<i>C</i>	-	Cynopterus
<i>E</i>	-	Eonycteris
<i>P</i>	-	Panhetor
<i>R</i>	-	Rousettus
°C	-	Degree Celsius
R	-	Recapture
Spp	-	Species
A	-	Adult
J	-	Juvenile
F	-	Female
M	-	Male
Rep	-	Reproductive status
L	-	Lactating
PL	-	Post lactating
PR	-	Pregnant
NR	-	Non-reproductive

WP	-	With pup
FA	-	Forearm
Wgt	-	Weight
NYC	-	<i>Nycteribia</i> spp.
CTN	-	<i>Ctenocephalides</i> sp.
ORN	-	<i>Ornithodoros</i> sp.
ANT	-	<i>Antricola</i> sp.

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## ABSTRACT

A study was carried out to determine the composition of ectoparasites on bats captured at mangrove areas at Kolej Universiti Sains dan Teknologi Malaysia (KUSTEM). The study was carried out for six months, from August 2005 until January 2006. The main aims of this study were to identify the species diversity of ectoparasites on bats and to compare the composition of ectoparasites on different species of mangrove bats captured. A total of 204 Megachiropterans were captured, including *Cynopterus brachyotis*, *C. sphinx*, *C. horsfieldii*, *Eonycteris sp. laea*, *Panhetor lucasi* and *Rousettus amplexicaudatus*. As for the ectoparasites, 226 individuals were collected from their host, including *Nycteribia* sp. 1 and *Nycteribia* sp. 2 from diptera, *Ornithodoros* sp. and *Antricola* sp. from ixodida and *Ctenocephalides* sp. from siphonaptera. Majority of the ectoparasites collected were *Nycteribia* sp 1 while *C. brachyotis* was the most highly infested bat species. All species of ectoparasites were more prevalent on female bats and adult bats. Factors that influenced ectoparasite prevalence on different species of bats were roost preference and the morphology of the bat. This study has successfully identified the genera of the ectoparasites that parasitize six species of bats. For future study of ectoparasites, factors regarding the niche of the host species should be given equal attention.



# KOMPOSISI EKTOPARASIT PADA KELAWAR DI KAWASAN PAYA BAKAU DI KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA (KUSTEM), TERENGGANU.

## ABSTRAK

Satu kajian telah dijalankan untuk menentukan komposisi ektoparasit pada kelawar di kawasan paya bakau di Kolej Universiti Sains dan Teknologi Malaysia (KUSTEM). Kajian ini telah dijalankan selama enam bulan iaitu dari Ogos 2005 hingga Januari 2006. Objektif kajian ini adalah untuk mengenalpasti kepelbagaian spesies ektoparasit kelawar di kawasan paya bakau serta komposisinya pada spesies kelawar yang ditangkap. Sejumlah 204 individu kelawar dari order Megachiroptera yang merangkumi *Cynopterus brachyotis*, *C. sphinx*, *C. horsfieldii*, *Eonycteris splanca*, *Panhetor lucasi* and *Rousettus amplexicaudatus* telah ditangkap. Bagi ektoparasit pula, 226 individu dari lima spesies telah diperolehi iaitu *Nycteribia* sp. 1, *Nycteribia* sp. 2 dari diptera, *Ornithodoros* sp, *Antricola* sp. dari ixodida dan *Ctenocephalides* sp. dari siphonaptera. Kebanyakan daripada ektoparasit yang diperolehi adalah *Nycteribia* sp. 1. *C. brachyotis* merupakan spesies kelawar yang mempunyai kadar jangkitan ektoparasit yang tertinggi. Semua spesies ektoparasit yang diperolehi mempunyai kecenderungan yang lebih tinggi untuk menjangkiti kelawar betina dan kelawar dewasa. Faktor yang dikatakan mempengaruhi ketersediaan ektoparasit atas sesuatu spesies adalah sarang kelawar dan morfologi kelawar itu sendiri. Kajian ini telah berjaya mengenalpasti genera ektoparasit yang menjangkiti enam spesies kelawar. Bagi kajian masa depan, faktor berkaitan dengan spesies perumah harus diberi perhatian yang menyeluruh.