

The **ECTOPARASITE *Trichodina* ON FRESHWATER FISHES AT** on
MOYOG RIVER IN BABAGON AREA, PENAMPANG. Was
submitted by **Clodia Geofery Magarab**, in partial fulfillment of the
requirement for the Degree of Bachelor of Science (Hons.) Biology, in the
Faculty of Applied Sciences and was approved by:



Anshir Salim
Supervisor
B. Sc. (Hons.) Biology
Faculty of Applied Sciences
Universiti Teknologi MARA
88997 Kota Kinabalu, Sabah

CLODIA GEOFERY



Ajimi Binti Jawan
Project Coordinator
B. Sc. (Hons.) Biology
Faculty of Applied Sciences
Universiti Teknologi MARA
88997 Kota Kinabalu, Sabah



Aji Lepit, Ph.D
Head
Center of Applied Sciences Studies
Faculty of Applied Sciences
Universiti Teknologi MARA
88997 Kota Kinabalu, Sabah

**Final Year project Report Submitted in
Partial Fulfilment of the Requirements for the
Degree of Bachelor of Science (Hons.) Biology
in the Faculty of Applied Sciences
Universiti Teknologi MARA**

Date: 9/2/2018

JANUARY 2018

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENT	iii
TABLE OF CONTENT	iv
LIST OF TABLES	vii
LIST OF FIGURES	viii
LIST OF ABBREVIATIONS	x
ABSTRACT	xi
ABSTRAK	xii
CHAPTER 1 INTRODUCTION	
1.1 Background	1
1.1.1 Taxonomy Rank	2
1.2 Problem statement	4
1.3 Significance of study	5
1.4 Objectives of study	5
1.5 Scope of study	6
CHAPTER 2 LITERATURE REVIEW	
2.1 Ectoparasites	7
2.2 Effect of protozoa infection	8
2.3 Factor affecting parasites assemblages in fish hosts	9
2.3.1 Host age and size	9
2.3.2 Host diet	10
2.3.3 Host sex	10
2.3.4 Host size and parasite size	10
2.4 <i>Trichodina</i> an ectoparasitic protozoa in fishes	11
2.4.1 Transmission of ectoparasite <i>Trichodina</i> in fish	12
2.4.2 Clinical sign	12
2.5 Example <i>Trichodina</i> species	13
2.5.1 <i>Trichodina cirratusi</i> , <i>Trichodina colisae</i> , <i>Trichodina glossogobiusi</i> , and <i>Trichodina oreochromisi</i>	13
2.5.2 <i>Trichodina domerguei</i> and <i>Trichodina tenuidens</i>	15
2.5.3 <i>Trichodina mutabilis</i>	16
CHAPTER 3 METHODOLOGY	
3.1 Study area	17
3.2 Materials	19

3.2.1	Raw material	19
3.2.2	Chemical	20
3.2.3	Apparatus	20
3.3	Methods	21
3.3.1	Staining Technique	21
3.3.2	Ectoparasites identification	21
3.3.3	Host sex determination	22
3.3.4	Length and weight measurement	22
3.3.5	Ectoparasites collection	23
	3.3.5.1 Gill	23
	3.3.5.2 Skin	23
	3.3.5.3 Fin	24
3.4	Research design	25
3.5	Statistical analysis data	26
3.5.1	Normality test	26
3.5.2	Kruskal Wallis test	26
3.5.3	Prevalence and intensity	27
3.5.4	Spearman Correlation	27

CHAPTER 4 RESULTS AND DISCUSSION

4.1	Total number of <i>Trichodina</i> found in each station	28
4.2	Prevalence and Intensity by fish gender	32
4.3	Data analysis of male and female fish with the total number <i>Trichodina</i> found based on length of fish	36
4.4	Correlation between <i>Trichodina</i> intensity with length for male fish	38
4.5	Correlation between <i>Trichodina</i> intensity with length for female fish	39
4.6	Data analysis of male and female fish with the total number <i>Trichodina</i> found based on weight of fish	40
4.7	Correlation between <i>Trichodina</i> intensity with weight for male fish	42
4.8	Correlation between <i>Trichodina</i> intensity with weight for female fish	43

CHAPTER 5 CONCLUSION AND RECOMMENDATIONS 45

CITED REFERENCES 47

APPENDICES 51

CURRICULUM VITAE 58

LIST OF TABLES

Table	Caption	Caption	Page
4.1	Distribution of <i>Trichodina</i> between three stations.	Compound microscope (40 x magnification)	28
4.2	Prevalence and intensity of <i>Trichodina</i> between male and female fish.	Babagon Penampang	32
4.3	Data for number of <i>Trichodina</i> with length for both fish gender.	Fish at Moyog river	36
4.4	Data for number of <i>Trichodina</i> with weight for both fish gender.	Impregnated with 2% silver-nitrate	38
3.5	Compound Microscope		20
3.6	40x magnification <i>Trichodina</i>		21
3.7	Examination fish gender		22
3.8	Length measurement		23
3.9	Scrapped mucus gills of fish		23
3.10	Scrapped mucus lateral line body fish		23
3.11	Scrapped mucus fins of fish		24
3.12	Moyog River. (a) Preparation to catch fish (b) Mucus collect		25
4.1	Fish lesion in sampling site		29
4.2	Histogram of No. <i>Trichodina</i> vs stations		29
4.3	<i>Trichodina</i> under compound microscope		31
4.4	Prevalence (%) by fish gender		33
4.5	Intensity by fish gender		33
4.6	11x magnification <i>Trichodina</i>		37
4.7	Scatter plot for correlation <i>Trichodina</i> intensity with length for male fish		38

ABSTRACT

ECTOPARASITE *Trichodina* ON FRESHWATER FISHES AT MOYOG RIVER IN BABAGON AREA, PENAMPANG.

This aimed of this study was documented the ectoparasite (*Trichodina*) on freshwater fish at Moyog River in Babagon area, Penampang. The objectives were identifying distribution parasite between three stations, determine the prevalence and intensity of parasite by fish gender, and determine correlation between parasite intensity with length and weight by fish gender. The genus *Trichodina* found at Moyog River in Babagon Area, Penampang with total number of 52. No statistical significant for distribution *Trichodina* between three different stations means no correlation, KW test showed $\chi^2(2) = 0.507$, $P = 0.776$ with a mean rank *Trichodina* distribution of 47.40 for station 1, 45.87 for station 2, and 43.23 for station 3 when run Kruskal-Wallis test. Prevalence and intensity of *Trichodina* by fish gender showed that male fish had the highest prevalence (42.9%) and intensity (1.47) compared to female fish prevalence (40%) and intensity (1.36). Spearman correlation showed no relationship between *Trichodina* intensity with length for both male ($r = 0.331$) and female ($r = 0.014$) fish. Negative correlation *Trichodina* intensity with weight for male fish ($r = -0.022$), for female fish ($r = 0.093$) also no statistical significant means no relationship between *Trichodina* intensity with weight. Strona and Fattorini (2014) stated that the number of parasite species found on host tends to be independent form the host body. Moreover, factor affecting the number of parasites per host is parasite specificity itself, not host characteristics. In future, it is recommended that the *Trichodina* parasite is further studied at Moyog River in Babagon Area, Penampang by doing identification up until the species level and also study on the indirect relationship of parasites with its host so there will be more useful information can be obtain