

SYNOPSIS AND BUSINESS ALLOCATION DETERMINATION
OF *Cymbopogon cordatus* IN LADA BELUKAN,
TERENGGANU.

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CHLOROPHYLL A AND BIOMASS ALLOCATION DETERMINATION OF
Cryptocoryne cordata AT LATA BELATAN, TERENGGANU.

By

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the requirements the degree of
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**PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II
RESEARCH REPORT VERIFICATION**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: CHLOROPHYLL A AND BIOMASS ALLOCATION DETERMINATION OF *Cryptocoryne cordata* AT LATA BELATAN, TERENGGANU oleh NOORSAKINAH BINTI MD NOOR, no. matrik: UK 10505 telah diperiksa dan semua pembedaan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperoleh ijazah SARJANA MUDA SAINS GUNAAN (PEMULIHARAAN DAN PENGURUSAN) BIODIVERSITI, Fakulti Sains dan Teknologi, Universiti Terengganu Malaysia.

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TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENT	ii
TABLE OF CONTENTS	iii
LIST OF TABLES	v
LIST OF FIGURES	vi
LIST OF ABBREVIATIONS	viii
LIST OF APPENDICES	ix
ABSTRACT	x
ABSTRAK	xi
CHAPTER 1 INTRODUCTIONS	1
1.1 Objective	2
CHAPTER 2 LITERATURE REVIEW	3
2.1 The genus <i>Cryptocoryne</i> Fisher	3
2.2 Distribution of <i>Cryptocoryne</i> in Malay Peninsular	5
2.3 Studies on <i>Cryptocoryne cordata</i> Griffith	8
2.4 Photosynthetic pigment	10
2.5 Productivity in aquatic plants	11
2.6 Ecological study of <i>Cryptocoryne</i>	12
CHAPTER 3 METHODOLOGY	13
3.1 Study Site	13
3.2 Species collection	15
3.3 Lab work	15
3.3.1 Chlorophyll <i>a</i> determination	15
3.3.2 Resource allocation	16
3.4 Statistic Analysis	17

CHAPTER 4 RESULTS	18
4.1 Physical Parameter	18
4.2 Chlorophyll a analysis	20
4.3 Biomass Allocation	22
4.3.1 Leaf weight ratio (LWR)	23
4.3.2 Petiole weight ratio (PWR)	24
4.3.3 Root Weight Ratio (RWR)	26
4.3.4 Rhizome Weight Ratio (RhWR)	27
4.3.5 Above Ground Biomass	29
4.3.6 Below Ground Biomass	30
4.4 Total carbon	32
CHAPTER 5 DISCUSSIONS	34
5.1 The physical parameter	34
5.2 The chlorophyll a value	35
5.3 Biomass Allocation	35
5.3.1 Leaf Weight Ratio	36
5.3.2 Petiole Weight Ratio	37
5.3.3 Root Weight Ratio	37
5.3.4 Rhizome Weight Ratio	37
5.4 Above Ground Biomass	38
5.5 Below Ground Biomass	38
5.6 Total Carbon	39
CHAPTER 6 CONCLUSION	40
REFERENCES	41
APPENDICES	45
CURRICULUM VITAE	68

LIST OF TABLES

Table		Page
1	The list of <i>Cryptocoryne</i> species that had been reported from Malay Peninsula.	6
2	The physical parameter at stream and swamp habitats at Lata Belatan.	19
3	The biomass allocation for leaf weight ratio (LWR), petiole weight ratio (PWR), root weight ratio (RWR) and rhizome weight ratio (RhWR) in the dry season.	22
4	The biomass allocation for leaf weight ratio (LWR), petiole weight ratio (PWR), root weight ratio (RWR) and rhizome weight ratio (RhWR) in the wet season.	22

LIST OF FIGURES

Figure		Page
1	The morphology of <i>Cryptocoryne cordata</i> .	4
2	The distribution of <i>Cryptocoryne cordata</i> in the Malay Peninsular.	7
3	The <i>Cryptocoryne cordata</i> plant.	9
4	Structure of chlorophyll <i>a</i> .	10
5	Structure of chlorophyll <i>b</i> .	11
6	Map shows the Lata Belatan Recreational forest.	14
7	The frame quadrat used to sample the plants.	15
8	The chlorophyll <i>a</i> value in the dry and wet season at the stream area.	20
9	The chlorophyll <i>a</i> value in the dry and wet season at the swamp area.	21
10	Biomass allocation for leaf weight ratio (LWR) at the stream area (population 1, population 2, population 3) in the dry and wet season.	23
11	Biomass allocation for leaf weight ratio (LWR) at the swamp area (population 1, population 2, population 3) in the dry and wet season.	24
12	Biomass allocation for petiole weight ratio (PWR) at the stream area (population 1, population 2, population 3) in the dry and wet season.	25
13	Biomass allocation for petiole weight ratio (PWR) at the swamp area (population 1, population 2, population 3) in the dry and wet season.	25
14	Biomass allocation for root weight ratio (RWR) at the stream area (population 1, population 2, population 3) in the dry and wet season.	26
15	Biomass allocation for root weight ratio (RWR) at the swamp area (population 1, population 2, population 3) in the dry and wet season.	27
16	Biomass allocation for rhizome weight ratio (RhWR) at the stream area (population 1, population 2, population 3) in the dry and wet season.	28

17	Biomass allocation for rhizome weight ratio (RhWR) at the swamp area (population 1, population 2, population 3) in the dry and wet season.	28
18	Above ground biomass at the stream area (population 1, population 2, population 3) in the dry and wet season.	29
19	Above ground biomass at the swamp area (population 1, population 2, population 3) in the dry and wet season.	30
20	Below ground biomass at the stream area (population 1, population 2, population 3) in the dry and wet season.	31
21	Below ground biomass at the swamp area (population 1, population 2, population 3) in the dry and wet season.	31
22	The total carbon value of stream and swamp habitat in the dry season.	32
23	The total carbon value of stream and swamp habitat in the wet season.	33

LIST OF ABBREVIATION

cm	-	centimeter
g	-	gram
L	-	litre
LWR	-	Leaf Weight Ratio
m	-	meter
mg	-	milligram
ml	-	milliliter
nm	-	nanometer
°C	-	degree celcius
pH	-	potential of hydrogen
PWR	-	Petiole Weight Ratio
RhWR	-	Rhizome Weight Ratio
RWR	-	Root Weight Ratio
α	-	alfa
λ	-	wavelength
μg	-	microgram

LIST OF APPENDICES

Appendix		Page
1	Chlorophyll a value at the stream and swamp habitats in the dry season.	44
2	Overall total dry weight at stream area in the dry season.	46
3	Overall total dry weight at swamp area in the dry season.	48
4	Overall total carbon at the stream area in the dry season.	50
5	Overall total carbon at the stream area in the dry season.	52
6	Chlorophyll a value at the stream and swamp habitats in the wet season.	54
7	Overall total dry weight at stream area in the wet season.	55
8	Overall total dry weight at stream area in the wet season.	57
9	Overall total carbon at the stream area in the wet season.	58
10	Overall total carbon at the stream area in the wet season.	60
11	T-test paired two samples for means at stream and swamp habitat in the dry and wet season .	61

ABSTRACT

The study of chlorophyll *a* and plant biomass allocation was conducted on *Cryptocoryne cordata* at the stream and swamp habitats at Lata Belatan, Terengganu in May and September 2007. The value of chlorophyll *a* at the stream populations range from $12.38 \pm 4.65 \mu\text{g/ml}$ to $28.65 \pm 4.65 \mu\text{g/ml}$ per plant in the dry seasons and $9.33 \pm 7.40 \mu\text{g/ml}$ to $31.31 \pm 7.40 \mu\text{g/ml}$ per plant in the wet seasons while at the swamp area, the chlorophyll *a* value range from $7.47 \pm 6.49 \mu\text{g/ml}$ to $31.79 \pm 6.49 \mu\text{g/ml}$ per plant in the dry seasons and $8.54 \pm 5.38 \mu\text{g/ml}$ to $27.52 \pm 5.38 \mu\text{g/ml}$ per plant in the wet season. T-test paired two samples shows that there were no significant different between stream and swamp area in the dry seasons ($\alpha = 0.05 > 0.020$) and significant different in the wet seasons for chlorophyll *a* value ($\alpha = 0.05 < 0.177$). For biomass allocation, the root weight ratio has the highest value at stream area while at the swamp area, the leaf weight ratio is the highest value in the dry season. In the wet season at stream area, the leaf weight ratio was the highest value while for swamp area also the leaf weight ratio is the highest. The above ground biomass ranged from $0.05 \pm 0.35 \text{ g}$ to $1.63 \pm 0.35 \text{ g}$ per plant at stream area in the dry seasons and $0.01 \pm 0.34 \text{ g}$ to $1.51 \pm 0.34 \text{ g}$ per plant in the wet season. At swamp area, the value was range from $0.03 \pm 0.18 \text{ g}$ to $1.13 \pm 0.18 \text{ g}$ per plant in the dry season and $0.05 \pm 0.24 \text{ g}$ to $1.15 \pm 0.24 \text{ g}$ per plant in the wet seasons. The below ground biomass at the stream area range from $0.01 \pm 0.40 \text{ g}$ to $2.52 \pm 0.40 \text{ g}$ per plant in the dry seasons while $0.04 \pm 0.32 \text{ g}$ to $1.57 \pm 0.32 \text{ g}$ per plant in the wet seasons. For the swamp area, the below ground biomass range from $0.01 \pm 0.12 \text{ g}$ to $0.61 \pm 0.12 \text{ g}$ per plant in the dry seasons and $0.05 \pm 0.22 \text{ g}$ to $1.12 \pm 0.22 \text{ g}$ per plant in the wet seasons. Total carbon was highest in leaf compared to petiole, root and rhizome. The study indicates that the environmental factor might be effects the chlorophyll *a* content and biomass allocation of the plant.

PENENTUAN NILAI KLOOROFIL A DAN BIOJISIM *Cryptocoryne cordata* GRIFFITH DI LATA BELATAN, TERENGGANU.

ABSTRAK

Kajian tentang klorofil *a* dan biojisim telah di jalankan ke atas *Cryptocoryne cordata* di kawasan sungai dan paya di Lata Belatan, terengganu pada bulan Mei dan September 2007. Nilai klorofil *a* di kawasan sungai adalah di antara $12.38 \pm 4.65 \mu\text{g/ml}$ hingga $28.65 \pm 4.65 \mu\text{g/ml}$ bagi setiap pokok untuk musim kering dan antara $9.33 \pm 7.40 \mu\text{g/ml}$ hingga $31.31 \pm 7.40 \mu\text{g/ml}$ bagi setiap pokok untuk musim hujan manakala bagi kawasan paya, nilai klorofil *a* adalah di antara $7.47 \pm 6.49 \mu\text{g/ml}$ hingga $31.79 \pm 6.49 \mu\text{g/ml}$ bagi setiap pokok untuk musim kering dan $8.54 \pm 5.38 \mu\text{g/ml}$ hingga $27.52 \pm 5.38 \mu\text{g/ml}$ bagi setiap pokok di musim hujan. Ujian T-test untuk nilai klorofil *a* menunjukkan ada perbezaan nilai antara sungai dan paya pada musim kering ($t_{0.05, 80} > 0.020$) dan tiada perbezaan pada musim hujan ($t_{0.05, 80} < 0.177$). Untuk nilai biomassa, nisbah berat akar adalah nilai paling tinggi untuk kawasan sungai manakala di kawasan paya, nisbah berat daun adalah paling tinggi untuk musim kering. Bagi musim hujan di kawasan sungai dan paya, nisbah berat daun menunjukkan nilai paling tinggi. Nilai biojisim atas tanah adalah di antara $0.05 \pm 0.35 \text{ g}$ hingga $1.63 \pm 0.35 \text{ g}$ bagi setiap pokok di kawasan sungai pada musim kering dan $0.01 \pm 0.34 \text{ g}$ hingga $1.51 \pm 0.34 \text{ g}$ bagi setiap pokok di musim hujan. Di kawasan paya, nilainya adalah di antara $0.03 \pm 0.18 \text{ g}$ hingga $1.13 \pm 0.18 \text{ g}$ bagi setiap pokok pada musim kering dan $0.05 \pm 0.24 \text{ g}$ to 1.15 ± 0.24 bagi setiap pokok untuk musim kering. Bagi nilai biojisim bawah tanah, dikawasan sungai nilainya adalah di antara $0.01 \pm 0.40 \text{ g}$ hingga $2.52 \pm 0.40 \text{ g}$ bagi setiap pokok untuk musim kering manakala $0.04 \pm 0.32 \text{ g}$ hingga $1.57 \pm 0.32 \text{ g}$ bagi setiap pokok pada musim hujan. Untuk kawasan paya, nilainya adalah di antara $0.01 \pm 0.12 \text{ g}$ hingga $0.61 \pm 0.12 \text{ g}$ bagi setiap pokok pada musim kering dan $0.05 \pm 0.22 \text{ g}$ to $1.12 \pm 0.22 \text{ g}$ bagi setiap pokok di musim hujan. Jumlah karbon paling tinggi terdapat pada bahagian daun berbanding dengan bahagian batang, akar dan rizom. Kajian ini menunjukkan bahawa faktor persekitaran mungkin memberi kesan ke atas nilai kandungan klorofil *a* dan biojisim pokok.