CHLOROPHYLL AND BIOMASS ALLOCATION DETERMINATION OF *Cryptocoryne cordata* [illegible], TERENGGANU

[illegible] NOOR

FAKULTI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA TERENGGANU
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Lihat sebelah

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

By

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Research Report submitted in partial fulfillment of
the requirements the degree of
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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 pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah SARJANA MUDA SAINS GUNAAN (PEMULIHARAAN DAN PENGURUSAN) BIODIVERSITI, Fakulti Sains dan Teknologi,Universiti Terengganu Malaysia.

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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

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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 ± 4.65 μg/ml to 28.65 ± 4.65 μg/ml per plant in the dry seasons and 9.33 ± 7.40 μg/ml to 31.31 ± 7.40 μg/ml per plant in the wet seasons while at the swamp area, the chlorophyll *a* value range from 7.47 ± 6.49 μg/ml to 31.79 ± 6.49 μg/ml per plant in the dry seasons and 8.54 ± 5.38 μg/ml to 27.52 ± 5.38 μg/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 ± 0.35 g to 1.63 ± 0.35 g per plant at stream area in the dry seasons and 0.01 ± 0.34 g to 1.51 ± 0.34 g per plant in the wet season. At swamp area, the value was range from 0.03 ± 0.18 g to 1.13 ± 0.18 g per plant in the dry season and 0.05 ± 0.24 g to 1.15 ± 0.24 g per plant in the wet seasons. The below ground biomass at the stream area range from 0.01 ± 0.40 g to 2.52 ± 0.40 g per plant in the dry seasons while 0.04 ± 0.32 g to 1.57 ± 0.32 g per plant in the wet seasons. For the swamp area, the below ground biomass range from 0.01 ± 0.12 g to 0.61 ± 0.12 g per plant in the dry seasons and 0.05 ± 0.22 g to 1.12 ± 0.22 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 KLOROFIL 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 ± 4.65 µg/ml hingga 28.65 ± 4.65 µg/ml bagi setiap pokok untuk musim kering dan antara 9.33 ± 7.40 µg/ml hingga 31.31 ± 7.40 µg/ml bagi setiap pokok untuk musim hujan manakala bagi kawasan paya, nilai klorofil *a* adalah di antara 7.47 ± 6.49 µg/ml hingga 31.79 ± 6.49 µg/ml bagi setiap pokok untuk musim kering dan 8.54 ± 5.38 µg/ml hingga 27.52 ± 5.38 µg/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 ± 0.35 g hingg 1.63 ± 0.35 g bagi setiap pokok di kawasan sungai pada musim kering dan0.01 ± 0.34 g hingga 1.51 ± 0.34 g bagi setip pokok di musim hujan. Di kawasan paya, nilainya adalah di antara 0.03 ± 0.18 g hingga 1.13 ± 0.18 g bagi setiap pokok pada musim kering dan 0.05 ± 0.24 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 ± 0.40 g hingga 2.52 ± 0.40 g bagi setiap pokok untuk musim kering manakala 0.04 ± 0.32 g hingga 1.57 ± 0.32 g bagi setiap pokok pada musim hujan. Untuk kawasan paya, nilainya adalah di antara 0.01 ± 0.12 g hingga 0.61 ± 0.12 g bagi setiap pokok pada musim kering dan 0.05 ± 0.22 g to 1.12 ± 0.22 g bagi setiap pokok di musim hujan. Jumlah karbon paling tinggi terdapat pada bahagian daun berbanding dengan bahagian batang, akar dan rizom. Kajian ini menukjukkan bahawa faktor persekitaran mungkin memberi kesan ke atas nilai kandungan klorofil *a* dan biojisim pokok.