

Research Bulletin

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Nepenthes stenophylla



Nepenthes fusca



Nepenthes chaniana



Nepenthes reinwardiana



Nepenthes hurrelliana



Nepenthes rafflesiana

Some *Nepenthes* spp. of Sarawak
(photograph courtesy of Qammi Muzzammi Abdullah)

Contents

Edible sea urchin species in Sabah waters	2
Assessment of the Talang-Satang National Park coral reef health status	3
Seaweed <i>Halimeda</i> spp. of Satang Island, Sarawak	4
Trees that colour the campus ambience	5
Genetic diversity of green turtle (<i>Chelonia mydas</i>) from Talang-Talang and Satang Islands, Sarawak based on partial <i>COI</i> gene analysis	9
Flora morphology and molecular study of <i>Canarium odontophyllum</i> Miq. (Dabai)	10



Dean's Message

Prof. Dr. Shabdin Mohd Long

This year Universiti Malaysia Sarawak is celebrating 20th Anniversary. UNIMAS has achieved outstanding output in various area and plenty more to be achieved in the coming years with the full support and commitment from all. To celebrate the 20 years of excellence, Faculty of Resource Science and Technology has identified various activities which includes conferences, short courses, scientific expedition, training for staffs and others. We are also in the preparation to increase the number of undergraduate and postgraduate students. Academic staffs should play vital role in order to provide excellent education to our students. Current information and knowledge and also proper supervision and hands-on experience are very important to develop student knowledge and also their marketability.

We hope MQA will approve our four new programme namely Food Science and Technology; Microbiology; Aquaculture, Science and Plantation Management and Urban Zoology. This new programme will strengthen our faculty and will be able to increase students significantly.

For the year 2012, the faculty is also in the preparation to establish one more Centre of Excellence based on biological resources and their utilization. This new CoE together with CoESAR will promote research activity and collaboration with other established centres and also to focused research which will have significant impact on research, development and commercialization.

My sincere hope that all academic staff will show high commitment in order to achieve excellent performance in teaching, research, publication, consultancy and also services to the public.

Please feel free to direct your enquiry to me at e-mail: lshabdin@frst.unimas.my or to the editorial members for further information.

Happy reading

However, silt and sedimentation should be monitored often as they are visible at every site, and research should be expanded to determine the lack of reef fishes in the area. However, silt and sedimentation should be monitored often as they are visible at every site, and research should be expanded to determine the lack of reef fishes in the area.

It is important that the reefs of Talang-Satang National Park are conserved as a natural heritage and managed from natural and anthropogenic pressures to support and sustain fisheries and tourism for generations to come.

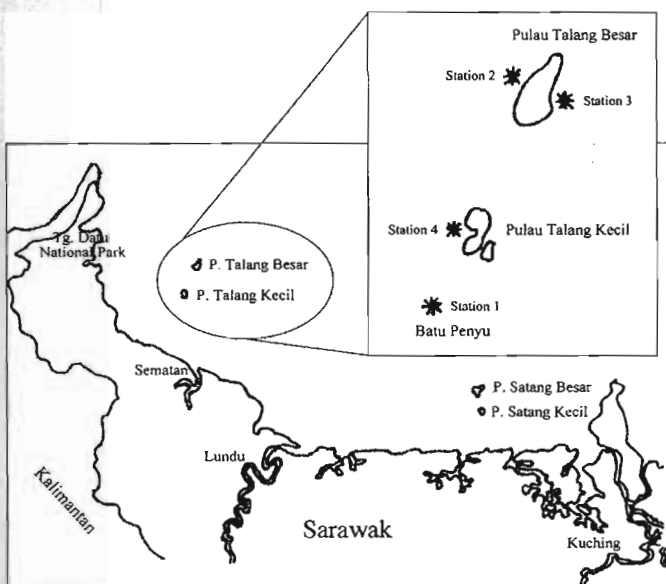


Figure 1: Map of the Talang Satang National Park region, Sarawak Malaysia; (Inset) The marked dive sampling sites within Talang-talang islands



Figure 2: Survey team members (Standing from left):Natasha Nur Amarina Mohd Kaie, Aleng (Boatman), Nurrin Nabillah Teoh, Lee Xue Li, Ng Chiew Tyiin, Aazani Mujahid, Ummi Haslinda Mohd Rosli (Reef Check Malaysia), Alang (Boatman), Mohd Norazlan Bujang Belly, Lamri. (Seated from left): Zaidi Ibrahim, Lee Nyanti, Hwong Yie Hahn

Seaweed *Halimeda* spp. of Satang Island, Sarawak

Farah Adibah Esa, Mohd Nasarudin Harith and Ruhana Hassan

Department of Aquatic Science

Introduction

Seaweed *Halimeda* is a calcified coenocytic green algae belonging to Order Caulerpaceles, Class Chlorophyceae (El-Manawy and Shafik, 2008); widespread in tropical and subtropical waters and they are well-developed on coral reef areas (Sundararajan *et al.*, 1999; Bandeira-Pedrosa *et al.*, 2004; El-Manawy and Shafik, 2008). This genus is characterized by a coenocytic thallus constructed of a system of interwoven bifurcated siphonous filaments that expand into utricles at the thallus surface (El-Manawy and Shafik, 2008). Macroscopically, the thallus is characterized by a series of green articulated coin shaped segments made rigid by the impregnation of calcium carbonate as aragonite (Bandeira-Pedrosa *et al.*, 2004).

Pulau Satang is one of the islands in Talang-Satang National Park located at West of Kuching, which is 45minutes drive from Kuching plus 30minutes by motorized boat. Satang Island possess a small coral reef area, besides this island is also known to be one of the main nesting and grazing grounds for green turtle, *Chelonia mydas* and hawksbill turtle, *Eretmochelys imbricata*. Besides its role as primary producer in a complex coastal food web, *Halimeda* is also one of the food sources of green turtle (Dennis and Balazs, 2009). *Halimeda* also contributes in building up the coral rocks (Sundararajan *et al.*, 1999).

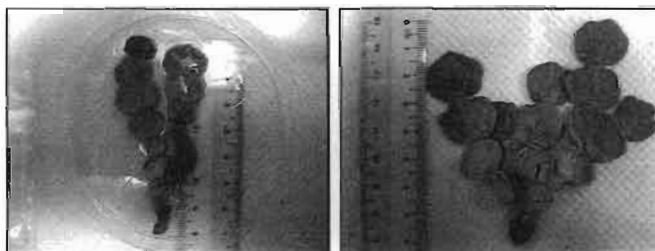
Materials and Methods

Seaweed specimens were collected randomly in the intertidal area during low tide when a large expanse of the shore was exposed. In addition, snorkeling method was used whenever appropriate to aid sample collections. The seaweed specimens were washed and cleaned to remove any foreign material such as epiphytes, sand and soil. Samples were kept cool and transported back to FRST laboratory. Photograph of each species was taken for record. Samples were identified followed those from Abbot and Dawson (1956), Dawes (1974), Abbot and Hollenberg (1976), Teo and Wee (1983), Littler *et al.* (1989), Sze (1993), Dhargalkar and Kavlekar, (2004), Bandeira-Pedrosa *et al.* (2004), Nurridan (2007), El-Manawy and Shafik (2008).

Results and Discussion

About 129 total individual of *Halimeda* was recorded inhabiting intertidal area of Pulau Satang. Up to-date, most the samples had been identified up to species level, whereas three samples are still in progress. The most common *Halimeda* species found in this study were *H.tuna* and *H.discoidea*. Details are as below:

Character	<i>Halimeda tuna</i>	<i>Halimeda discoidea</i>
Color	Green	Green to pale green
Height	6-7cm	8cm
Branching	Three branches from basal, dichotomous	Two branches from basal, have two basal segment, branching is sparse, dichotomous to trichotomous
Holdfast	Small-disc like, anchored by sand	Small-bulbous, attached to sand
Basal shape	Cuneate (wedge-shaped)	Slightly rectangular
Segment shape	Cylindrical, fan-shaped, reniform	Flat, reniform, flabellate, some segments have three-lobed
Surface view of segment	Hexagonal	Hexagonal
Ecology	Sandy substratum, intertidal area	Sandy substratum, intertidal area



Anatomy provides additional distinctive characters such as the size and shape of the utricles and structure of the node joining two successive segments (Bandeira-Pedrosa *et al.*, 2004). Several problems were encountered during this study, particularly in identification of seaweed up to species level. One of the difficulties in identifying *Halimeda* up to species level is that gross morphology varies among populations of the same species as this character is easily influenced by habitat and other environmental factors. Therefore future work in this project will involve exploration of suitable molecular markers to aid the identification of seaweed up to species level.

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All *Halimeda* specimens were found in shallow coastal water and sandy substratum. Similarly, Nirmal Kumar *et al.* (2009) reported that this macroalgae are found in relatively shallow coastal water and also on solid substrate such as rocks and other plant materials. Dennis and Balazs (2009) documented that *Halimeda discoidea* was found as one of the diet of green turtle, *Chelonia mydas*. During this study, *H. discoidea* could be found almost in all study area, therefore, this could be one of the reasons why green turtles prefer to nest in Satang Island.

Species recognition mainly based on: 1) gross morphology of the segments, 2) branching pattern, 3) position and shape of holdfast.

Sundararajan, M., Rajendran, M., Kaliaperumal, N. & Kalimuthu, S. (1999). Studies on species of *Halimeda* from Lakshadweep. *Seaweed Resource Utilisation* 21 (1&2): 161-169.

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Trees that colour the campus ambiance

Hamsawi Sani, Abas Said and Mohd Effendi Wasl

Department of Plant Science and Environmental Ecology

The planting of trees together with shrubs and herbaceous plant in an appropriate design and arrangement will enhance the landscape scenery and ambiance. Proper selection of trees with colourful flowers and flushes will uplift the visual aesthetic values of the parks and urban sceneries. UNIMAS has done just that by planting several species that produce colorful new flushes as well as trees with colour flowers in the new campus. These trees produce flowers and flushes at different time, thus create a colourful ambiance all year round. And also trees planted along the road and near the buildings help in soften the outline of the building and at the same time cutting down the heat and glare from the rooms (Chin and Enoch, 1992; Ivan, 1987).

Such colourful ambiance will only be achieved and created with proper design and selection of trees, shrubs and herbs. In addition, the biotic (soil nutrient and pH) and climatic factors (rainfall and temperature) also influence the flowering as well as flushing as well as tree growth. To-date there is no study has been published on the timing of flowering and flushing of landscape trees species.