PROGRAM & ABSTRACTS

21st International Seaweed Symposium

Seaweed Science for Sustainable Prosperity

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Hosted by:

International Seaweed Association

Organized by:

NATIONAL ORGANIZING COMMITTEE 21st ISS

Main Support:

MINISTRY OF MARINE AFFAIRS AND FISHERIES

10:10 - 10:30	**Molecular phylogeny and systematics of the marine red algal family *Liagoracea*e sensu lato (Nemaliales, Rhodophyta)** Lin SM*, Huisman JM, Payri CE, Rodríguez-Prieto C, Nelson WA, Guiry MD, Liu SL	
10:50 - 11:10	**Genetic similarity analysis within *Pyropia yezoensis* blades developed from both conchospores and blade archeospores using AFLP** Wang G*, He L, Zhu J, Lu Q, Niu J, Zhang B, Lin A	
11:10 - 11:30	**DISCUSSION**	
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COFFEE/TEA 11:30 - 11:45		**South Lobby**
CONTRIBUTED PAPERS 17	**MOLECULAR BIOLOGY AND SYSTEMATICS I** **Chair: Gabriel D**	**Uluwatu Room 1**
11:45 - 12:00	**The *Gibsmithia hawaiiensis* complex (Dumontiaceae, Rhodophyta): Molecular phylogeny, taxonomic characterization, and the proposal of new species** Gabriel D*, Draisma SGA, Sauvage T, Schmidt W, Fredericq S	
12:00 - 12:15	**Intraspecific genetic diversity of *Sargassum polycystum* (Sargasaceae, Heterokontophyta) C. Agardh in the Asia-Pacific region based on mtDNA COI and cox3** Kantachumpoo A, Noiraksar T, Uwai S, Komatsu T	
12:15 - 12:30	**Transcriptome analysis of male and female gametes of the brown alga, *Syctoshiphon lomentaria*** Han JW*, Klochkova TA, Shim JB, Motomura T, Nagasato C, Kim GH	
12:30 - 12:45	***Kappaphycus* sp. nov., a new species of *Kappaphycus* (Gigartinales, Rhodophyta) from Malaysia** Tan J*, Lim PE, Rahiman A, Phang SM	
CONTRIBUTED PAPERS 18	**BIOFUELS FROM SEAWEEDS** **Chair: Kawaroe M/ Co-chair: Chirapat A**	**Uluwatu Room 5**
11:45 - 12:00	**Chemical composition and potential for ethanol production from Thai species of seaweed** Chirapart A*, Praiboon J, Puangsombat P, Pattanapon C, Nunraksa N	

The *Gibsmithia hawaiiensis* complex (Dumontiaceae, Rhodophyta): Molecular phylogeny, taxonomic characterization, and the proposal of new species

Gabriel D[1,2]*, Draisma SGA[3], Sauvage T[2], Schmidt W[2], Fredericq S[2]

[1]Research Center in Biodiversity and Genetic Resources (CIBIO) - University of the Azores, 9501-801 Ponta Delgada, Portugal danielalgabriel@gmail.com
[2]University of Louisiana at Lafayette, Department of Biology, Lafayette, LA 70504-2451, USA
[3]University of Malaya, Institute of Ocean & Earth Sciences, Kuala Lumpur 50603, Malaysia

The genus *Gibsmithia* was erected on the basis of *G. hawaiiensis* Doty 1963 from the Hawaiian archipelago to accommodate a species of red algae in the Dumontiaceae consisting of clusters of gelatinous lobes growing from a cartilaginous stalk. Three additional species were subsequently described from Australia, i.e. *G. dotyi* Kraft & R.W. Ricker 1984, G. *larkumii* Kraft 1986 and *G. womersleyi* Kraft & Ricker ex Kraft 1986. Records of *Gibsmithia* have been reported from different localities throughout the Indian Ocean and the central and western Pacific, with *G. hawaiiensis* acknowledged as having the widest geographic distribution. *Gibsmithia hawaiiensis* can be easily distinguished from the other species in the genus by the presence of abundant cortical filaments extending beyond the frond's surface giving the specimens a furry appearance. Based on new subtidal collections and existing herbarium specimens, a study was conducted on the genetic diversity of specimens identified as *G. hawaiiensis*. The three genetic markers employed (COI, *rbc*L and UPA) revealed the existence of a species-complex comprising two major lineages, with genetically distinct species. The *Gibsmithia hawaiiensis* complex exhibits high genetic diversity in the Indo-Malay region, with one lineage distributed throughout the E Indian Ocean and the W Pacific, and a widespread second lineage collected from East Africa to French Polynesia. In contrast, low genetic diversity characterizes members from isolated regions as the Hawaiian archipelago and the semi-closed Red Sea. The high divergence associated with poor resolution observed in geographically widespread lineages obscures species boundaries. The generitype and two new species forming the *Gibsmithia hawaiiensis* complex can be distinguished on the basis of anatomical characters that were previously regarded as morphological plasticity within *G. hawaiiensis*. Additional studies are underway to assess the large-scale phylogenetic and biogeographic patterns in *Gibsmithia*.

Competing for spaces - The case of seaweed farming and Semporna Island Parks within the Coral Triangle Initiatives

Gaim JL

Geography Unit, School of Social Sciences, Universiti Malaysia Sabah, Malaysia gaim.ums@gmail.com

Seaweed farming was given priority by Department of Fisheries, Sabah, Malaysia as a supplementary income-generating activity among the fishing community. During the 10th Malaysia Plan, substantial funding allocation was approved to promote and encourage more sustainable seaweed farming activities. As a result, more people have gradually become involved in seaweed farming. Unfortunately, seaweed culture plots are found mostly on the fragile 'reef top platform'. In order to protect and conserve this fragile environment, Sabah Park gazetted most of the seaweed production area while allowing existing local communities to carry their long established seaweed farming tradition. In view of these new developments, the Department of Fisheries reported to have faced constrains and problems to carry out their missions. Thus, not much attention was given to address these concerns. This research aimed at providing means to address these issues with field studies conducted at the Semporna Island Parks, Sabah, Malaysia. Resulting from this study, preliminary conservation and production zones were identified and presented to the relevant agencies for considerations. A more detailed study on the zoning alignments was proposed along with other management options that will protect the interest of both the seaweed industry and conservation initiatives.