Biodiversity and conservation of non-vascular plants in Asia - what lessons can we learn from mosses?

Oral -23

CTFS and the Bukit Timah Project

Shawn Lum

National Sciences and Science Education Academic Group, National Institute of Education, 1 Nanyang Walk, Singapore 637616

Oral -24

Biodiversity and conservation of non-vascular plants in Asia - what lessons can we learn from mosses?

Benito Tan

The Herbarium, Singapore Botanic Gardens, Nparks, Singapore

A review of the moss biodiversity in selected countries in Asia at different latitudes is presented with consideration of the area size of the country. It appears that the moss biodiversity at high latitudes is as diverse in term of number of species as in the tropics near the equator. Recent studies also show tht mosses, as a group of land plants, can survive longer in their microhabitats, after the original forest vegetation is seriusly disturbed. Having still undiscovered economic values, it is proposed that the moss diversity in Asia be best preserved together with other groups of plants and animals in protected nature reserves.

Poster -1

A systematic study of crustose coralline algae (Corallinales, Rhodophyta) in the Ryukyu Islands

Aki Kato[1], Masasuke Baba[2], and Shoichiro Suda[3]

[1]*Graduate School of Engineering and Science, University of the Ryukyus, Senbaru 1, Nishihara, Okinawa, 903-0213, Japan,* [2]*Marine Ecology Research Institute, Kashiwazaki, Niigata 945-0017, Japan,* and [3]*Department of Chemistry, Biology and Marine Science, Faculty of Science, University of the Ryukyus, Senbaru 1, Nishihara, Okinawa, 903-0213, Japan*

Crustose coralline algae (Corallinales, Rhodophyta) are widely distributed from the polar to tropical regions all over the world. Crustose coralline algae (CCA) are completely calcified and play very important roles as reef-building organisms. CCA are biogeographically and paleoecologically unique, because the present distribution pattern of CCA are less likely to reflect recent dispersal by human activity, and because fossil records are available for paleoenviromental studies.

In the Ryukyu Islands, approximately 20 crustose coralline species have been reported in eight genera of three families, more than half of which are also known in the tropical Indo-Pacific region. However, some of these species have unclear species definitions. Moreover, there have been few molecular studies of CCA at the species level, and no study using molecular data of CCA from Japan have been conducted so far. The reason for this lack of molecular studies on CCA is that species identification requires observation of anatomical structures of vegetative and reproductive organs of calcified specimens, which takes a longer time than for non-calcified and non-crustose algae.

The present study is being undertaken to determine DNA sequences of small subunit ribosomal RNA (18S rDNA) of six CCA species commonly found in the Ryukyu Islands to confirm that these species are the same as species that are distributed in the other regions, with the aim of ultimately providing clues to taxonomically revising CCA species and elucidating the biogeographic relationships of CCA in the Indo-Pacific region.