

Macro-algae in Lawas mangroves, Sarawak, Malaysia: ecosystem functions and economic aspects

M.K. Abu Hena¹, S. Gandaseca², C.I. Arianto² & J. Ismail¹

¹Department of Animal Science and Fishery, Faculty of Agriculture and Food Sciences, Universiti Putra Malaysia Bintulu Sarawak Campus, Nyabau Road, Post Box No. 396, 97008 Bintulu, Sarawak, Malaysia. E-mail: hena71@yahoo.com

²Department of Forestry, Faculty of Agriculture and Food Sciences, Universiti Putra Malaysia Bintulu Sarawak Campus, Nyabau Road, Post Box No. 396, 97008 Bintulu, Sarawak, Malaysia.

Abstract

Mangrove macro-algae grow epiphytically on pneumatophores, prop roots and stems in the brackish and marine water environment. They are unique to certain mangrove habitats and an understanding of their abundance may indicate the health of mangrove ecosystems. The macro-algae of Lawas mangrove forests are mainly *Bostrychia* spp. followed *Caloglossa* spp., *Enteromorpha* spp., *Catenella* sp. and *Rhizoclonium* sp. The dominate species of mangrove was *Rhizophora* sp. followed by *Ceriops* sp., *Lumnitzera* spp. and *Avicennia alba* in Lawas mangrove forest at Miri, Sarawak. The biomass of macro-algae was 34.16 mg/DW/cm² for prop roots surface area of *Rhizophora* sp. and 1.30 mg/DW/cm² for pneumatophores surface area of *Avicennia alba* which is comparable with other studies elsewhere. In the past, several studies found that the algal mats associated with mangroves represent a major source of primary producers, energy source in food web, carbon storage, habitat for small invertebrates, sediment trappers and nitrogen fixers. However, in recent years the macro-algae from mangrove habitat have been tested for potential use for volatile constituents and antibiotic activities, bio-indicators of contamination and bio-monitors of metal contamination in estuarine ecosystems. Considering the above factors, the epiphytic macro-algal diversity in this pristine mangrove area of Sarawak could be a biodiversity “hotspot” for marine ranching, examining of marine ecosystem functions and biotechnology potentiality which is being discussed in this paper.

Keywords

mangrove algae, ecosystem function, economic importance, Sarawak, Malaysia