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MARINE ALGAL FLORA OF POHNPEI ISLAND OF THE FSM

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Introduction

Study of marine flora of Pohnpei Is., Micronesia goes back to OKAMURA (1916) and YAMADA (1944). After these early studies, ENOMOTO *et al.* (1986) who joined the 4th Scientific Survey of the South Pacific conducted by the Research Center for the South Pacific, Kagoshima University, reported 36 taxa of Chlorophyceae. AJISAKA *et al* .(1986), who accompanied with the same expedition, also refered to a red alga, *Eucheuma*, cultured in Pohnpei.

Ten years after the expedition, the research vessel of Kagoshima University, *Keitenmaru* visited the same island under the project 'Men and Nature in Micronesia' conducted by the same center. In this expedition, the authors had the opportunity to visit Pohnpei and report here on several coastal seaweeds.

Materials and Methods

Surveys were made on 12-15 November, 1994. Specimens were collected intertidally and

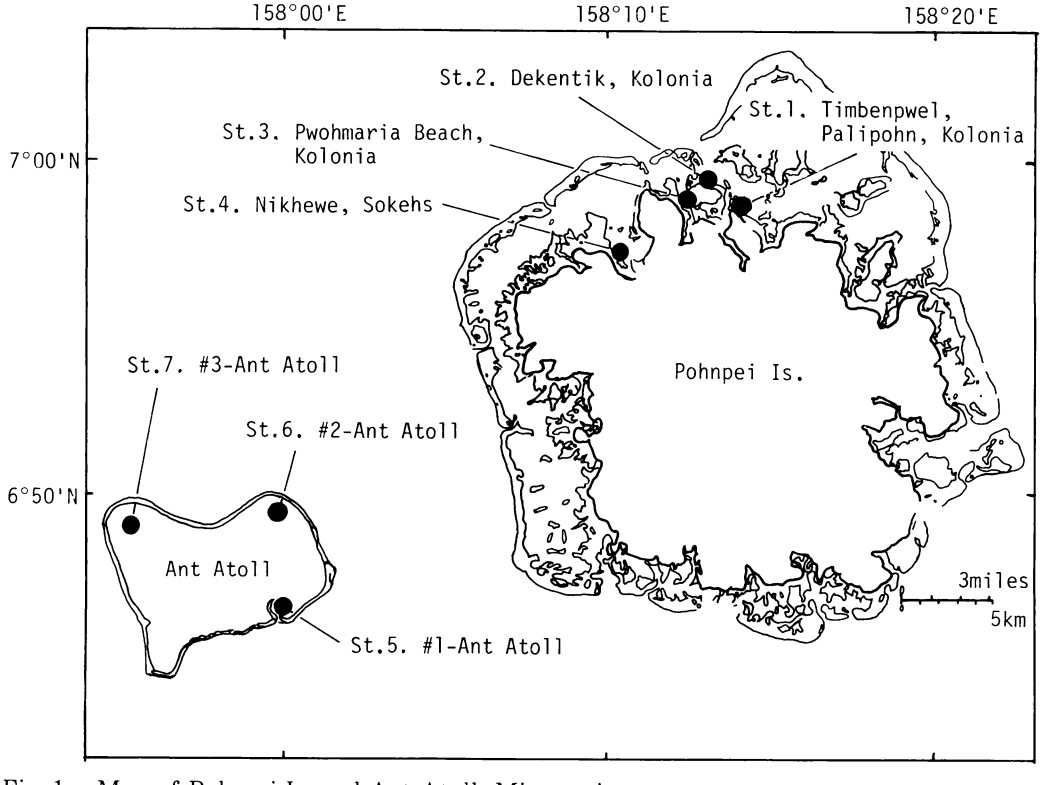

Fig. 1. Map of Pohnpei Is. and Ant Atoll, Micronesia.

subtidally by skindiving, and were preserved in 10% formalin-seawater before being mounted as herbarium specimens. The specimens are deposited in the Herbarium of Marine Plants, Faculty of Fisheries, Kagoshima University.

Results and Discussion

The present report lists 32 taxa of marine algae, including 2 taxa of blue-green algae, 7

Table 1. List of algae distributed in Pohnpei Is. and Ant Atoll, Micronesia.

	Kolonia			Sokehs	Ant Atoll		
	Timwenpwel	Dekehtik	Pwohmaria	Nihkewe	#1	#2	#3
Blue green algae							
Nostoc sp.	+						
Lyngbya sp.	+	+					
Red algae							
Hypnea charoides			+				
Gracilaria edulis	+	+	+	+			
G. salicornia	+	+		+			
Ceratodictyon spongiosum	+			+			
Halymenia sp.	+		+				
Ceramium tenerrimum			+				
Laurencia sp.				+		+	+
Brown algae							
Dictyota dochotoma	+	+		+		+	
Stuypopodium zonale	+					+	
Padina japonica	+	+	+	+			
Pockockiella variegata							
Hydroclathrus clathratus		+					
Turbinaria ornata	+		+				
Sargassum polycystum		+	+	+			
S. ilicifolium	+						
Green algae							
Cladophora sp.		+					
Microdictyon okamurai				+	+		+
Boodlea coacta						+	
Dictyoshaeria cavernosa				+	+		+
Caulerpa brtachypus	+					+	
C. sertularioides	+		+		+		
C. lentillifera	+		+	+			
C. okamurai					+		
C. serrulata v. *serrulata* f. *lata*	+		+	+		+	+
Avrainvillea erecta							+
Avrainvillea sp.					+		
Udotea occidentalis							+
Halimeda macroloba	+	+	+	+			
H. incrassata f. *incrassata*						+	
H. opuntia f. *opuntia*	+	+	+	+			

taxa of red algae, 8 taxa of brown algae and 15 taxa of green algae. Most were already known from the area.

Among these marine algae, *Gracilaria edulis* was the dominant red alga in the shallow area of Kolonia. During the low tide of November when we stayed in Pohnpei, *G. edulis* was exposed in the estuary near Kolonia and Sokehs. This is one of the biggest vegitations of *G. edulis* the authors know in the South Pacific or South East Asia. As raw materials of agar, *G. edulis* has potential economic value for Micronesia. Another species of a red alga, *Eucheuma*, had been transplanted from outside Pohnpei and cultured to extract carrageenan. Because of its high growth rate and economic value, *Eucheuma* is cultured in many tropical Asian countries, but, it is not native to Pohnpei. The environmental conditions may not suitable for *Eucheuma* to survive there. For example, *Eucheuma* farms are often destroyed by big waves or typhoons. On the other hand, *G. edulis* attaches to coral firmly and massively. This means *G. edulis* acquired its survival strategy in the natural ecosystem of Pohnpei.

Juvenile plants of *Sargassum* were prominent in Sokehs on shallow reefs. It was quite difficult to identify the species name of *Sargassum* plants without having any matured receptacles. However, because of conspicuous spines on the stem, many small vesicles and stolons, the juvenile *Sargassum* growing in Sokehs seems to be *S. polycystum*, one of the common *Sargassum* in the tropical Indo-Pacific area.

According to local fishermen, *S. polycystum* grew up to one meter or more in length by April. This brown algae was the big seaweed only growing on Pohnpei. It is well known that *Sargassum* vegitation offered spawning or nursary grounds for many kinds of marine fish and animals. In this meaning, *S. polycystum* contributes in coastal marine ecosystems.

Even in tropical islands, seaweeds growing in Pohnpei showed seasonal growth patterns, and it was not the best season of collecting seaweeds when the authors visited this island. To obtain more species of algae, collection in March to April would be necessary.

Generally speaking, Pohnpei is surrounded by mangrove swamps, and the shoreline of the reef is covered by silty mud. Beside these geological conditions, climatic factors are negligible for the seaweed's distribution. Heavy rainfall in the wet season reduces the salinity near the coast and makes the seawater turbid. These environmental conditions prevent the growth of many kinds of seaweeds distributed in the open sea.

Ant Atoll is isolated from Pohnpei and the influence of magnrove swamps is scarred. The atoll is uninhabited and visited by only a few tourists in daytime. For these reasons, there is no polution on the atoll, and many small green algae were prominent. For example, *Caulerpa* and *Udotea* were growing on coral sandy bottom. Not only green algae, but also benthic marine animals were also rich in.

Depend on the rich variety of marine organisms and the beautiful seascape, Ant Atoll is recommended as a natural marine park in Micronesia.

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