동해안과 제주도에 생육하는 해조류의 군집구조

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Community Structure of Marine Algae on East Coast and Jeju Island, Korea

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핵심용어 : 해조류, 군집구조, 생물량, 우점종
Key Words : Marine algae, Community structure, Biomass, Dominant species

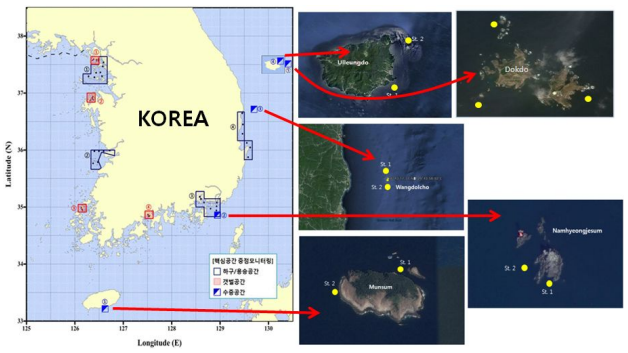
Abstract

A subtidal marine benthic algal flora was investigated to clarify the community structure and the pattern of geographical distribution by a quadrate method from January to December from 2015 to 2016 at Munseom, Nam-hyeung-je-sum, Wangdol-cho, Ulleungdo and Dokdo in Korea. A total of 147 species including 14 (9.5%) of green algae, 41 (27.9%) of brown algae, and 92 (62.6%) of red algae were collected and identified. The biomass ranged from 53.8 to 175.7 dry wt. m^{-2} during the study period. The maximum biomass was Ulleungdo, and the minimum was Wangdol-cho. The dominant species were *Ecklonia cava*, *Ecklonia stolonifera*, *Myagropsis myagroides*, *Sargassum horneri*, and *Eisenia bicyclis* at study site. The R/P and (R+C)/P value were 2.9 and 3.3, respectively. A cluster analysis produced three groups that differed meaningfully: one included the sites Munseom, Ulleungdo, Dokdo and another included the site Nam-hyeung-je-sum (island), the other included the site Wangdol-cho.

Materials and Methods

Research

- Sites : Munseom at Jeju Island
  Nam-hyeung-je-sum, Wangdol-cho, Ulleungdo, Dokdo at East Coast
- Observation : Twice a year by SCUBA diving
- Sampling : Quantitative collection by depth (Upper, Middle, Lower)
  Qualitative survey after quantitative collection
- Photographs : Digital video camera and 35mm underwater camera
- An ecological study for macroalgal community analysis



Number of occurrences and rates

Division	Sampling sites										
	2015					2016					
	U	W	N	M	Sum	U	W	N	M	D	Sum
Chlorophyta	9	6	7	4	11	6	7	8	10	7	14
Phaeophyta	17	15	25	19	38	24	9	23	22	19	41
Rhodophyta	52	38	50	28	78	53	44	50	55	48	92
Total	78	59	82	51	127	83	60	81	87	74	147

Representative species with high biomass

(dry wt. m^{-2})

Species	2015				2016				
	U	W	N	M	U	W	N	M	D
Desmarestia viridis	28.1								
Undaria pinnatifida	24.0								
Ecklonia cava				68.7	75.2			80.2	38.1
Ecklonia stolonifera			82.6				53.0		
Eisenia bicyclis					52.6				42.3
Myagropsis myagroides			63.0						
Sargassum horneri		48.5				27.8			
Sargassum piluliferum			26.9						
Amphiroa anceps				47.7				32.7	

Conclusion

- ✓ **Total 147 species**
  : 14 green, 41 brown, and 92 red
- ✓ **Main dominant species with high biomass**
  : *Ecklonia cava*, *Ecklonia stolonifera*, *Eisenia bicyclis*, *Myagropsis myagroides*, *Sargassum horneri*, *Amphiroa anceps*
- ✓ **Major species according to importance value**
  : *Umbraulva japonica*, *Undaria pinnatifida*, *Ecklonia cava*, *Ecklonia stolonifera*, *Eisenia bicyclis*, *Myagropsis myagroides*, *Sargassum horneri*, *Amphiroa anceps*, *Grateloupia lanceolata*, *Acrosorium polyneurum*
- ✓ **Cluster analysis**
  : Analyze into 3 groups

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