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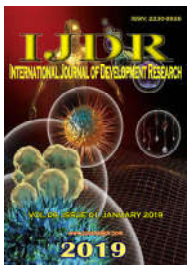

ORIGINAL RESEARCH ARTICLE OPEN ACCESS

SPECIES COMPOSITION, FREQUENCY AND TOTAL DENSITY OF SEAWEEDS

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ABSTRACT

This study was conducted to determine the species composition, frequency and total density of seaweeds found on the island of Nusalaut. There were 33 species of seaweed. Of the 33 species, 15 were from the class of Chlorophyceae (45.5%), 10 species from Rhodophyceae (30.3%), and 9 species from Phaeophyceae (27.3%).Total frequency showed the highest Gracilaria (Rhodopyceae) of 29.63% in Akoon and Titawaii is 20.34%, while Halimeda (Chloropyceae) of 19.60% found on the Nalahia. Highest total frequency Phaeophyceae (Padina) is 12.96% found on the Akoon. The highest value of total density is village Ameth that is 1984 gr / m² is from the Rhodophyceae group (Acantophora), Nalahia is 486 gr/m² from the Cholorophyceae group (Halimeda), and Akoon that is 320 gr/m² from the Phaeophyceae group (Padina).

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INTRODUCTION

Seaweeds are the multicellular macroalgae with complex differentiated thallus (Rao and Vaibhav 2006). Seaweeds are the macro benthic (large and attached) forms of marine algae (Baleta *et al*. 2016). They are subdivided into four different groups: brown algae (Phaeophyta), red algae (Rhodophyta), green algae (Chlorophyta), and blue-green algae (Cyanophyta) (MacArtain *et al*. 2007). They constitute one of the important living resources of the ocean and were found attached to the bottom on solid substrates such as rocks, dead corals, pebbles, shells and plants (Sahayaraj*et al*. 2014).Seaweeds are primary producers and play a central role in coastal habitats (Harley *et al*. 2012). They support the coastal and marine biodiversity (Christie *et al*. 2009) and are the base of food chain in the oceans (Figueiredo and Creed 2009). Seaweeds are not only of high ecological, but also of great economic importance (Domettila *et al*. 2013).This study was conducted to determine the species composition, total density and diversity of seaweeds found on the Island of Nusalaut.

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MATERIALS AND METHODS

This research was conducted from Oktober 2009. The sampling location was on the island of Nusalaut such as Titawaii, Akoon, Abubu, Ameth and Nalahia. For 100 m line transects were laid perpendicular to the shore at every station. For every of the transect line, four 50 cm×50 cm quadrat was placed randomly.

RESULTS AND DISCUSSION

Species composition: There were 33 species of seaweeds identified from 21 families belonging to Chlorophyceae, Rhodophyceae and Phaeophyceae, (Table 1). Of the 33 species, 15 were from the class of Chlorophyceae (45.5%), 10 species from Rhodophyceae (30.3%), and 9 species from Phaeophyceae (27.3%).Chloropyceae has the highest percentage of seaweed found in Nusalaut. This may be due to high number of species from Chlorophyceae are mainly found in shallow tropical waters (Phang 2008).

Total frequency: Total frequency showed the highest Gracilaria (Rhodopyceae) of 29.63% in village Akoon and Titawaii is 20.34%, while Halimeda (Chloropyceae) of 19.60% found on the Nalahia. Highest total frequency Phaeophyceae (Padina) is 12.96% found on the Akoon.

Table 1. Summary of identified seaweeds species

Class	Order	Family	Scientific Name
CHLOROPHYCEAE	Cladophorales	Siphonocladaceae	*Boorgesenia forbesii*
			Boodle coacta
	Cladophorales	Anadyomenaceae	*Chaetomorpha crassa*
			Chaetomorpha spiralis
			Chaetomorpha cavernosa
			Chaetomorpha media
	Bryopsidales	Caulerpaceae	*Caulerpa cupressoides*
	Bryopsidales	Codiaceae	*Codium fragilis*
	Cladophorales	Siphonocladaceae	*Distyosphaeria cavernosa*
			Distyosphaeria versuysii
	Malvales	Ulvaceae	*Enteromorpha prolifera*
	Caulerpales	Halimedaceae	*Halimeda makroloba*
			Halimeda discoides
			Halimeda apuntia
	Malvales	Ulvaceae	*Ulva reticulata*
RHODOPHYCEAE	Ceramiales	Rhodomelaceae	*Acantophora dendroides*
	Corallinales	Corallinaceae	*Amphiroa sp*
	Gigartinales	Rhizophyllidaceae	*Chondrococcous sp*
	Gracilariales	Gracilariaceae	*Gracilaria crassa*
			Gracilaria lichinoides
	Gelidiales	Gelidiellaceae	*Gelidiella acerosa*
	Nemaliales	Galaxauraceae	*Galaxaura fastigiata*
	Hypnales	Hypneaceae	*Hypnea carvicornis*
			Hypnea saidana
PHAEOPHYCEAE	Dictyotales	Dictyotaceae	*Dictyota bartaeressy*
	Fucales	Sargassaceae	*Hizikia fusiformis*
	Ectocarpales	Scytosiphonaceae	*Hydroclaclathrus clathratus*
	Fucales	Sargassaceae	*Sargassum crassifolium*
			Sargassum crispifalium
			Sargassum duplicatum
			Sargassum patens
	Dictyotales	Dictyotaceae	*Padina crassa*
	Fucales	Sargassaceae	*Turbinaria ornata*

The presence and growth of seaweed in a place depends on the habitat, season and conditions of the surrounding environment.

Total density: Total density is village Ameth that is 1984 gr / m² is from the Rhodophyceae group (Acantophora), Nalahia is 486 gr/m² from the Cholorophyceae group (Halimeda), and Akoon that is 320 gr/m² from the Phaeophyceae group (Padina). The difference in the value density of macroalgae shows the existence of habitat and environmental influences due to season, sedimentation and solid waste disposal to macroalgae diversity (Litaay 2013).

Conclusion

Overall, a total of 33 species of seaweed. Chloropyceaehas the highest percentage of seaweed found in Nusalautthat is 45.5%. The highest value of frequency is village Akoon that is Rhodopyceae(Gracilaria) 29.63%, while total density is village Ameth that is 1984 gr/m² is from theRhodophyceae group (Acantophora).

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