Brown macroalgae flora on the coastline of Bushehr province counties

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Abstract

Marine brown macroalgae are an important part of the tidal coaste flora in Bushehr province with rocky, coral and sandstone beds. Brown seaweeds need a solid and stable support (natural or artificial) to be attached algae holdfasts to the them, ensuring their establishment for growth, multiplication and development against violent waves. Because of this, most macroalgae are not able to grow on sandy beaches with slippery beds. However, in parts of sandy beaches where concrete structures have been constructed, macroalgae species have grown well. Lack of knowledge and complete knowledge of brown macroalgae species reserves, species diversity and their habitats in the coastal strip from 7 counties of adjacent to the Persian Gulf coastline led to the collection of brown macroalgae during the growing to reproductive phase, was carried out seasonally since 2017 for 3 years. Half of each collected macroalgae sample was kept in a 4% formaldehyde-seawater solution in a glass bottle and the other half was prepared as an herbarium sample. Measurement of seawater surface temperature outside the maximum tidal range and at a depth of one meter of seawater with thermocouple showed that the temperature ranges for the onset of growth of brown macroalgae up to the reproductive stage is between 15 $^{\circ C}$ to 32 $^{\circ C}$. Identification and classification of macroalgae based on morphological and micromorphological traits was performed using different sources of algae and the results of Iranian researchers and other countries. 39 species of macroalgae identified from 7 coastal counties of Bushehr province belong to 14 genous from 6 families of the Phaeophyta phylum. The diversity of brown macroalgae species belonging to the coastal counties of Deylam, Genaveh, Bushehr, Tangestan, Dayyer, Kangan and Asaluyeh are 6, 9, 31, 17, 22, 20 and 20, respectively. The reason for the richness of species in Bushehr coastal counties rather than other coastal counties, especially Deylam, Genaveh and Tangestan counties, can be explained by the wider habitates of rocky, spongy and sandstone beds and the attchment of its holdfasts to beds. Factors affecting the low diversity of species in Deylam and Genaveh conuties can be attributed to pollution caused by Imam Hassan (AS) oil facilities and other facilities adjacent to the coast, discharge of industrial and non-industrial wastewater to the coasts and also the sandy bed of most coasts of these counties. The main reasons for the decrease in species diversity in the coastlines of Kangan, Assaluyeh and Deir counties rather than Bushehr counties can be attributed to the discharge of industrial and non-industrial wastewaters and saline water from various desalination facilities of petrochemicals facilities toward the coastlines of all those and also the pollution caused by gas refineries which are adjacent the coasts of Kangan and Assaluyeh.

Keywords: Flora, Seaweed, Brown Algae, Phaeophyta, Bushehr Province.

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