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Ascidians: A perspective of West Bengal Coasts

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Abstract

Ascidians are Tunicata (Chordata), filter-feeding sessile benthos, exclusively marine, and a source of novel bioactive compounds. Work on ascidians of Indian waters was pioneered in 1915, and till date about 273 species of ascidians have been recorded. The objective was to find the probable reasons behind the absence of ascidians in the intertidal zones of West Bengal coasts. It was hypothesized that the salinity and natural rocky substratum limit the diversity and distribution of intertidal ascidians. Intertidal zones of West Bengal coasts (both the Sundarbans and Digha zones) were surveyed seasonally between 2024 to 2025 using LIT (Line Intercept Transect) and random quadrat methods. No ascidians were found during the study. Further, a systematic review of literature found no previous records of ascidians from West Bengal. Along the Indian Sundarbans, water temperature salinity varied from 1.33 to 32.95 psu, and turbidity varied from 0 to 71 NTU. Sediments of coastal areas of the Indian Sundarbans were mostly loamy sand; however, loam, silt loam, and silty clay loam were also observed. Along the Digha coasts, water salinity varied from 33 to 13.5 psu, and turbidity varied from 0 to 40 NTU. The sediments of Digha and its surrounding coasts were loamy sand. Absence of ascidians might be due to low salinity, high sedimentation load, absence of natural rocky shoreline, and tide pools in the Indian Sundarbans. Digha coasts are, however, not suffering from low salinity and high sedimentation load. Even after that, ascidians were absent. It could be concluded that salinity is not the only major limiting factor for the distribution of intertidal ascidians. Sedimentation and geomorphological characteristics of the coastline shall not be overlooked while intertidal diversity and distribution of ascidians are assessed. Those perspectives may help in better understanding the intertidal ecology of sessile benthic organisms.

Keywords: Salinity, Sedimentation, Geomorphology.