



Analysis of Zooplankton from the water of Bay of Bengal near Andaman

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Abstract: Analysis of Bio mass, protein, lipid, carbohydrate, organic carbon of zooplankton from 5 stations in the waters of Bay of Bengal near Andaman sea. Bio mass varied from 1.20 to 11.00 ml 10^{-3} . Based on the results observed in the present study zooplankton does not extensive lipid storage suggesting that protein in addition to the lipid may serve as metabolic reserve.

Key words: Biochemical composition, zooplankton, Bay of Bengal, Andaman sea.

Introduction

An assessment of bio mass, bio chemical composition and energy content in zooplankton is important to have a better understanding of the organic production. Productivity and cycling of biogeo chemical elements in the marine biotope. Such information is of much importance in estimating the energy available to higher trophic levels, which in turn, can be used to estimate harvestable fishery resources.

Materials and methods

Surface zooplankton samples were collected from 5 stations during 113th cruise of ORV Sagar Kanya ship. Samples were sampled using a sonnet net. At each station horizontal hauls were made for 10 min duration. Immediately after collection, the samples were cleaned of debris, placed in a small Nylon sieve and thoroughly

rinsed with milli-Q water to remove salts. After measuring Bio mass, one half of the sample was preserved with 5% formaldehyde for taxonomical studies and another half of the sample was freeze-dried again dried to 50°C until constant weight was obtained at shore laboratory.

Results and Discussion

Zooplankton bio mass dry weight, total population densities and dominant groups of zooplankton along 88°E longitude and 11-3°N latitude taken from the water of Bay of Bengal are given in table-1.

Total zooplankton in the respective waters varied from 4240 to 28840 no. 100m^{-3} ($\bar{x} = 2087 \pm 8515$) and from 4630 to 50490 no. 100m^{-3} . Higher biomass, dry weight and total population densities are observed in 5 stations.



Station No.	Biomass (ml.100 ⁻³)	Dry weight (mg100 ⁻³)	Total population No. 100 ⁻³ m	Dominant groups
1.	1.40	414	7,540	Lucit, cope, chaet foram
2.	1.50	610	5,480	Cope foram chaet deca
3.	6.00	821	11,560	Cope, foram, chaet astro
4.	10.00	1310	25,600	Cope, foram, chaet astro
5.	2.00	760	4,240	Cope, chaet foram, astro

Cope= copepods, chaet=chaetognaths, deca= decapods, foram=foraminifera, ostra=ostrocards.

Eighteen zooplankton groups were identified in the waters of Bay of Bengal throughout the study period. Copepods contributed maximum (68.9%) followed by forminifera (15.11%) chaetognatha (11.85%) adult crustaceam (8.21%) decapod larva (3.43%) molluscans (2.73%) and miscellaneous groups (3.86%) including fish eggs and larvae, hydromedusa, siphonophores, olkopleura, dolcoleds and polychaetes in the respective waters of the Bay of Bengal during the study period.

Protein formed the major biochemical component and ranged from 24.00 to 37.20% protein values observed in the present study are compassable to the values earlier reported for the zooplankton of west coast of India.

The lipid content in the present study showed wide variation from 5.08 to 11.50% ($\bar{x}=6.79 \pm 2.10$) along 88°E

and from 5.08 to 14.25% along the 11.3°N latitude of the Bay of Bengal. The values recorded in the present study agree with the values reported earlier.

The values of carbohydrate in the present study are relatively high ranging from 3.01 to 6.43% ($\bar{x}=4.36 \pm 1.10$) of Bay of Bengal, carbohydrate content in zooplankton depends upon its composition, decreasing with increase of gelatinous organisms and increasing with copepod population. In the present study copepods are the dominant group throughout study period, and may be responsible for the higher carbohydrate content. Low carbohydrate content reflects the short-term variation in glycogen storage of the marine organisms which in turn, depends upon their feeding activities.

Based on the above observations, I am having an opinion



that although lipid and carbohydrate could function as important food reserve, protein may also be utilized and function as a reserve food.

Organic carbon of zooplankton is a reliable source of energy equivalent of secondary production for any reason. It is mainly dependent upon the species composition, the size of the different populations and availability of food general and physiological state of the individual organisms. In the present study values are varied from 23.00 to 35.02%.

Applications

Zooplankton are to secondary producers in the Ocean and are inter-linked between primary and tertiary producers in the marine food chain. Zooplanktons are important Chief Scientist, 113th cruise of ORC Sagar Kanya to allow me to participate and

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microorganisms to identify the fishery sources of particular are protein content in the zooplankton is high and also pure. I can use the zooplankton protein as food supplement for the human being.

Conclusion

It is therefore evident from the present study that the variations in biochemical constituents are influenced by the species composition of zooplankton. The zooplankton in the waters of Bay of Bengal near Andaman sea does not appear to have an extensive storage of lipid and carbohydrate and this might be due to availability food.

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