Available online at **www.joac.info**

ISSN: 2278-1862

Journal of Applicable Chemistry

2016, 5 (2): 414-421

(International Peer Reviewed Journal)

Biochemical Composition of Zooplankton from the Water of Bay of Bengal during Premonsoon Season

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Accepted on 9th February 2016

ABSTRACT

Proximate composition and variations in biomass, protein, lipid, carbohydrate, organic carbon and calorific content of mixed zooplankton from the 25 stations in the waters of Bay of Bengal along 88º E longitude (13 stations), and along 11.3º N latitude (12 stations) were estimated. Biomass varied from 1.20 to 11.00 ml.100^{-3} ($\bar{x}$ =4.32±3.70) along 88º E longitude and 2.00 to 20.00 ml.100^{-3} ($\bar{x}$ =7.60±4.48) along 11.3º N latitude in the waters of Bay of Bengal. Copepods, foraminifera, chaetognatha, adult crustaceans, decapods formed the dominant group of total zooplankton (>95.36 and 95% for the respective areas). Of the biochemical fractions of mixed zooplankton, protein formed the major component, varied from 24.00 to 37.20% ($\bar{x}$ =29.88±4.58) and 22.76 to 48.06% ($\bar{x}$ =34.25±5.95) in the respective longitude and latitudes. Lipid varied from 5.06 to 11.50% ($\bar{x}$ =6.79±2.11), and from 5.08 to 14.25 ($\bar{x}$ =7.44±2.50), the carbohydrate content ranged from 3.01 to 6.43% ($\bar{x}$ = 4.261±10), and from 3.02 to 8.08% ($\bar{x}$ =4.82±1.27) for the respective areas. The values of the organic carbon varied from 23.00 to 35.02% ($\bar{x}$ =27.90±4.55), and from 25.48 to 38.03% ($\bar{x}$ =31.47±2.81) for the respective longitudes and latitudes. The calorific potential varied from 1.98 to 3.45 ($\bar{x}$ =2.50±0.48), and from 1.92 to 4.39 ($\bar{x}$ =2.88±0.61) k.cal.g^{-1} for the respective longitude and latitudes. Higher values of the biochemical constituents were observed when the population densities of copepods, foraminifera, chaetognatha, adult crustaceans and decapods were also high. Significant positive correlations observed between total populations, displacement values, dry weight, protein, lipid, carbohydrates, organic carbon and calorific values indicates to certain extent, that these act as metabolic reserve of the zooplankton. Based on the results observed in the present study, zooplankton does not have extensive lipid storage suggesting that protein in addition to the lipid may serve as metabolic reserve. Relatively higher calorific values were attributed to the dominance of copepods in the zooplankton population throughout the study period.

Keywords: Biochemical composition, zooplankton, Bay of Bengal.