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Research note:

Mangrove populations of Visakhaptnam and Sarada and Varaha estuarine complex, India

G.M. NARASIMHA RAO
Department of Botany, Andhra University, VISAKHAPATNAM (A.P.) INDIA

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Mangroves are beautiful coastal tropical formations occur between land and sea. Andhra Pradesh stands the second largest mangroves in the country. Tiny mangrove ecosystems in Visakhaptnam, Sarada and Varaha estuarine complex has been reported by Venkanna *et al*. (1989), Narasimha Rao and Venkanna (1996), respectively. In this present study an attempt has been made to understand the present status of mangroves and distribution of mangrove populations in relation to hydrographical and sedimentological observations.

In Visakhaptnam, Megradrigedda is a rain fed drain merges into Bay of Bengal at inner of Harbor of visakhaptnam. After construction of Megradrigedda reservoir inflow of the freshwater into Bay of Bengal was completely reduced, but low quantity of freshwater input was noticed during the monsoon periods. Mangroves occur along the mud flats of the Megradrigedda near inner harbor region and extend towards the drain. This region regularly communicated with tidal regimes of the Bay of Bengal.

Mangrove ecosystem of Visakhaptnam lies between latitudes 17^0 14´ 30½and 17^0 45½N longitude 83^0 16´ 25½ and 83^0 21´ 30½ E on the East Coast of India. The Sarada and Varaha are two small river systems in the east coast of India that flow into the Bay of Bengal near Varaha in Andhra Pradesh (latitudes 17^0 22´ 30½ and longitudes 82^0 47´ 30½). Mud flats are formed along the estuaries near the Bay and the tidal influence is up to 4 to8 kms upstream. Near the confluence, the muddy and swampy regions exist, harboring the mangrove vegetation which occupy nearly 8 to 10 sq kms are of the estuarine system. Surface water samples were collected from above two study sites for the analysis of water temperature, salinity and pH. Temperature was measured by the thermometer. Data on salinity and pH were measured by salinometer and pH meters, respectively. Water turbidity was measured by using secchi disc. Soil samples were collected at each study site for sedimentological observations. Sediment analysis was done by pipette method.

Hydrographical conditions of the surface waters at two study sites were presented in the Table 1A and Table 1B. Data were collected in three different seasons such as pre monsoon, monsoon and post monsoon periods. High surface water temperature (28.5^0C) was noticed during pre monsoon periods and minimum (20.5^0C) in the post monsoon period. Salinity of the seawater varied seasonally with maximum salinity (33.5‰) in the pre monsoon and minimum (25.0 ‰) in monsoon period. pH of the seawater shows the positive correlation with salinity. Turbidity of the seawater varied seasonally with maximum turbidity was reported in monsoon period and low turbidity values in pre monsoon periods. Same trend in the hydrographical parameters of Sarada and Varaha estuarine complex was also observed (Table 1B). Sediment analysis of samples from two study sites showed

Table 1A : Hydrographical features of Megradrigedda rain fed drain at mangrove populations

	Pre-monsoon April-May	Monsoon July-August	Post-monsoon November-December
Temperature(^{0}C)	28.5	24.0	20.5
Salinity (‰)	33.5	25.0	31.5
pH	7.3	7.0	7.2
Secchi Disc (cm)	20	15	18

Table 1B : Hydrographical characters of Sarada and Varaha estuarine complex near mangrove populations

	Pre-monsoon April-May	Monsoon July-August	Post-monsoon November-December
Temperature (^{0}C)	27.0	23.5	19.0
Salinity (‰)	33.0	27.0	32.0
pH	7.2	7.1	7.2
Secchi Disc (cm)	35	25	30