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### Distribution and composition of halophytes at Vainateyam estuary Andhra Pradesh

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#### ABSTRACT

Halophytes are succulents which occur near estuarine and mangrove habitats only. These plants are commercially useful for food, fodder, extraction of antibiotics and bio-fuels. Halophytes of Vainateyam estuary was studied by using 1 X1 m quadrat; 6 study sites were selected in the distributaries of the estuary to collect the data on distribution and abundance of different plant species. A total 60 quadrat samples were collect in various parts of the estuary to get the information on frequency and abundance of halophytic populations. Species such as *Suaeda maritima*, *Suaeda monoica*, *Salicornia bracliata* and *Sesuvium portulacastrum* were reported as dominant forms in this estuary while species such as *Suaeda nudiflora*, *Heliotropium curassavicum* and *Prosopis chilensis* were reported as rare species. Frequency and abundance were also minimum for these populations in this estuary. Halophytes were distributed along the creeks and drainage canals near the estuary.

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Halophytes are transitional plants which occur in between true mangroves and terrestrial plants. They are capable of withstanding high salt concentrations and distributed along the estuaries, back water creeks. Now a days these halophytic populations are highly valuable and their use in bio-saline, agriculture as vegetables and extraction of bio-fuels. Ecology and distribution of halophytic populations along the mangroves and its associates was studied by Umamaheswara Rao and Narasimha Rao (1998), Baskara Rao *et al.* (1992), Venkanna and Narasimha Rao (1993), Naarsimha Rao and Dora (2009), Narasimha Rao and Subba Rangaiah (2010) and Narasimha Rao and Murthy (2010a,b). In the present study observations were collected on distribution and abundance of halophytic plant species in the estuarine region of Vainateyam river, one of the branches of river Godavari.

River Godavari bifurcated into two branches, Gauthami and Vashista. This Vashista branch of Godavari flows south east and divided into two branches namely Vashista and

Vainateyam. Vainateyam branch of Godavari opens into Bay of Bengal at Karawaka near Gogannamatam. Mangroves and halophytic species are spreading either side of the estuary. Total six study sites were selected for collection of data. At each station 10 quadrat samples were collected and total 60 quadrat samples were collected to analyze the data on frequency and abundance of halophytes.

Information collected on density of the halophytes occurs in the six different stations of Vainetayam estuary was present in Table I. This branch of Godavari estuary was dominated by the halophytic vegetation. In station 1, *Prosopis chilensis* was having highest density (682 plants/ha) while *Suaeda monoica* showed minimum density (426 plants/ha) with height of 20-25 cm. In station 2, maximum density was reported for the species *Sesuvium portulacastrum* (572 plants/ha) and minimum density for *Arthrocnemum indicum*. Whereas in station 3, highest density (814 plants/ha) was reported for *Suaeda maritima* and minimum density (564 plants/ha) for *Suaeda nudiflora*. In station 4, *Salicornia bracliata* was the dominating plant

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Table: 1

Density of halophytes at various stations of Vainateyam estuary. Values presented are the mean density/ha for each species

Nam of the Plant species	Station 1	Station 2	Station 3	Station 4	Station 5	Station 6
<i>Arthrocnemum indicum</i>	572	466	676	564	782	862
<i>Sesuvium portulacastrum</i>	614	572	748	492	674	794
<i>Suaeda maritima</i>	512	492	814	514	628	812
<i>Suaeda monoica</i>	426	556	696	412	814	874
<i>Prosopis chilensis</i>	682	476	582	516	424	762
<i>Salicornia brachiata</i>	636	542	620	584	592	864
<i>Sueda nudiflora</i>	580	496	564	424	618	824

Table: 2

Distribution of halophytes in the Vainateyam estuary

Name	Family
1. <i>Arthrocnemum indicum</i>	Chenopodiaceae
2. <i>Sesuvium portulacastrum</i>	Aizoaceae
3. <i>Suaeda maritima</i>	Chenopodiaceae
4. <i>Suaeda monoica</i>	Chenopodiaceae
5. <i>Prosopis chilensis</i>	Fabaceae
6. <i>Salicornia brachiata</i>	Chenopodiaceae
7. <i>Suaeda nudiflora</i>	Chenopodiaceae

than of other species. Species such as *Suaeda monoica* and *Arthrocnemum indicum* was the dominant forms in station 5 and 6 (Table 1). In the present study, seven halophytic species were reported with different densities. These seven species belongs to Chenopodiaceae, Aizoaceae and Fabaceae (Table 2). Plants are distributed very near to water edges where there are no true and associated mangroves. In station 3 and 4 halophytes are present away from the water edge after 30 to 40 meters. Estuarine regions are daily inundated by the high tides of sea. Accumulation of salt content in estuarine soils may be responsible for the distribution of halophytes in estuarine habitat. Composition of soil i.e silt, clay and sand contents also influence the growth, development and distribution of mangrove species and halophytes. Present study agrees with the earlier

investigations of Bhaskara Rao *et al.* (1992), Narsimha Rao and Dora (2009) and Narsimha Rao and Murthy (2010 b).

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