

## STUDIES ON SOME HALOPHYTES OF PESHAWAR DISTRICT

M.S. SARIR, K.B. MARWAT\* AND J.K. KHATTAK

*Department of Soil Science, N.W.F.P. Agricultural University, Peshawar.*

### Abstract

*Suaeda fruticosa* and *Desmostachya bipinnata*, tolerating salinity, were the predominant halophytes in saline area of Peshawar District. *Suaeda fruticosa*, *Desmostachya bipinnata*, *Cyperus laevigatus*, *Saccharum spontaneum* and *Cynodon dactylon* having wide ecological range prefer saline and saline-sodic soils, while *Acacia jacquimontii*, *Capparis decidua* and *Tamarix aphylla* preferring saline-sodic soil have narrow ecological range.

### Introduction

Plants and soil characters are so interdependent that they become indicative of each other. A habitat under certain existing environment would permit plants adapted to the condition. The distribution of plants is governed by the chemical and physical nature of the soil in a geographical region. The soil plant relationship becomes so intimate that plants reflect the ecological conditions of the inhabited area. Hilgard (1911) and Kearney *et al* (1914) recognising this fact, used plants as indicators of salinity. Billings (1945) and Roberts (1950) observed the differences in the chemistry of soil under different plant communities. Chaudhri & Sheikh (1969) recorded plants of halophytic communities of the Punjab and Salim & Suhail (1970) reported some halophytes during their study on hydrophytes. Similarly Khattak & Khattak (1976) worked on soil plant relationship of salted soils of D.I. Khan. The present study was conducted to provide some information on the halophytes of Peshawar district.

### Material and Methods

Plants collected from saline areas (Anon., 1967) of Peshawar district in July 1973, were identified. Soil samples from the same locality were analysed using standard methods of USDA Hand-book-60 (Anon., 1954).

### Results and Discussion

Species listed in Table 1 were identified to be either salt tolerant or salt loving in the area with pH of the soil ranging from 7.2 to 9.9 under various plants. *Suaeda* and *Desmostachya* present in soils with total salts from 0.5 to 3.0 percent, represented a mere halophytic situation. The observation agree with El-Gably (1961) and Hussain (1974) who observed *Suaeda* to be mere halophytic species while *Desmostachya* which

\*Department of Biology, University of Agriculture, Peshawar.

Table 1. Plant species in relation to soil physicochemical characteristics.

Name of Plant Specimen	Local Name	ECe X 103 mm hos/cm	Soluble Na %	Exchangeable Na %	pH	Salt %	Textural Class
<i>Suaeda frutescens</i> (L.) Forsak	Zoza/Zmey	5-100	21-99	10-84	7.7-9.9	2.0-3.0	Silty-Sandy clay loam
<i>Desmostachya bipinnata</i> (L.) Stapf.	Poski Boti/ Sarmal	5-100	21-99	10-84	7.7-9.9	2.0-3.0	Silty-Sandy clay loam
<i>Cyperus laevigatus</i> (L.) Clark	Azghaki	7-100	21-99	30-84	8.0-9.0	0.5-3.0	Silty-Sandy loam
<i>Cynodon dactylon</i> (L.) Pers.	Drub	7-100	55-99	32-80	9.0-9.8	1.5-3.0	Silty-Sandy loam
<i>Acacia jacquemontii</i> Benth.	Kiker	8.0-8.5	21-80	20-25	8.0-8.5	0.3-0.33	Silty clay
<i>Capparis decidua</i> (Forsk.) Edgero	Kira	8.0-8.5	74-80	20-25	8.0-8.5	0.3-0.33	Silty clay
<i>Tamarix aphylla</i> (L.) karst.	Ghaz	8.2-13.0	45-74	15-20	7.2-8.0	0.3-0.61	Silty clay

is not a true halophyte but was present due to high salt tolerance. *Tamarix*, *Capparis*, *Acacia*, *Cynodon*, *Cyperus* and *Saccharum spontaneum* present in relatively less saline area are salt tolerable species rather than true salt lover.

Bernstein (1958) reported *Cynodon* to tolerate upto 12 millimhos. Species like *Cyperus*, *Cynodon* and *Saccharum* do better at slight saline condition with moisture. They generally are the pioneer species in such communities. *Tamarix* is a climax species of the salted areas of Peshawar valley. *Capparis* and *Acacia*, characteristic member of tropical thorny deciduous vegetation of the valley are salt tolerant and were present occasionally in the saline area. The kind and number of species present in an area depends upon the character of the soil. The absence of some of the halophytes is primarily due to severe biotic interference in the area. However, with unmanaged irrigation system and other edaphic, topographic factors, the kind and number of these halophyte may increase or decrease.

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