

## ABSTRACT

The present study is carried out to monitor and evaluate the adaptability of plant species to an industrial waste heap (lime beds) near ICI Soda Ash Works Khewra Pakistan.

In a preliminary survey a representative site was selected for monitoring the effect on plants. The soil analysis indicated that salinity and calcium content of soil increased from walls towards the lime beds. This is also reflected correspondingly on the richness and diversity of species across the lime beds. The less tolerant species: *Dodonaea viscosa*, *Parkinsonia aculeata*, *Leucaena leucocephala*, *Salvadora oleoides*, *Callistemon lanceolatus*, and *Bougainvillea.sp* are restricted to the walls and transitional zone whereas, the tolerant species *Eucalyptus camaldulensis*, *Prosopis juliflora* and *Tamarix aphylla* survived on the lime beds, among them *E.camaldulensis* is the most tolerant. The species on the lime beds are showing symptoms of stress in the form of short stature, chlorosis; necrosis and stem dieback.

Chemical analysis of the leaves and shoots suggests high accumulation of  $\text{Na}^+$  in the tissues of plants growing on the lime beds as compared to the walls. Generally most of the species have accumulated significantly high amount of  $\text{Ca}^{2+}$  in the shoots and leaves in the presence of low amount of  $\text{Na}^+$  ions while high concentrations of  $\text{Na}^+$  affected the accumulation of  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$  and the nutrients (K, N and P).

It is recommended that the condition of plants growing on the lime beds can be improved by more frequent irrigation to reduce the stress of both salinity and drought.