

INTRODUCTION

Under Egyptian conditions , desert lands occupy more than 90 % of the whole area .These deserts suffer from sand movement which makes a great problem, especially dessertation of the agricultural lands .These areas are characterized with their sandy texture. As the effect of winds , most of them are exposed to sand movement .

Sand dune formation is one of the most phenomena that happens especially near seashore areas . It causes harmful effect to soil , road , vegetation , towns as well as the biological media .To overcome sandy dune movements ,three stabilization methods can be used ; mechanical , chemical and biological .The biological system depends on selection of the most beneficial plants which have the characteristics of growing rapidly on the limited amounts of water by their, rapid vertical and horizontal expansion of root system .

Several studies on the effect of chemicals were carried out using bitumen emulsion , polyacrylamide , farmyard manure , urea formaldehyde , polyvinyl alcohol and asphalt, concluded that some of them with different concentrations , combination and ways of addition are helpful in that way overcoming sand dune forming (**Awad 1983a; El-Amir, 1987; Diab et al ,1988; Salem,1988; El-Hady et al , 1991; Hekal,1992; and Petchey,1993**).These chemical stabilization methods depend on using some polymer compounds which are synthetical byproducts of petroleum manufacture and have higher molecular weights which are capable for absorbing water several amounts equal to times- up to 500 times of their weights in which improve water retention in the soil system (**Balba 1988**). These chemicals are considered as soil conditioners which have

the ability to absorb enormous amounts of water . Thus, water is retained in the root zone several ongoing sides and available water to the growing plants considerably increases.

Biological studies on sand dune fixation focusing on planting specific plant species which can grow well under these conditions and causing more catching of the sand particles which resulting in more dune fixation . Leucaena leucocephala (lam) de Wit or lead tree had gained a favorable reputation in land reclamation, erosion control, water conservation, reforestation and soil improvement programs . And green manure crop. It produce large and condense foliage and soil cover which could use as valuable forage for most of the domestic animals . The root system characterized with greet expansion horizontally as well as vertically which resulted in high ability to resist the lock of water . Acacia species are famous as an oasis of desert owing to its capability to grow more under a very limited amount of water .

It grow will under drought conditions due to its vertical and horizontal expansion of rat system . Its foliage consider as highly qualified forage .This species use in the revegetation programs in the deteriorated range areas.

The aim of this investigation is to study the effect of two soil conditioners i.e bitumen emulsion and polyvinyl acetate at various concentrations; as well as the biological factor by using Acacia and Leucaena plant species on minimizing sand dune movement in addition to evaluating germination and growth of the studied plant species under these conditions .