

# Salinity and prevention of wind erosion in the southeast of Urmia Lake



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## INTRODUCTION

Iran has long been involved in wind erosion processes by being located on dry and desert belts. One of the areas affected by wind erosion is the outflows from the back of Lake Urmia, which is likely to increase in intensity with the drying of Lake Urmia and the increase of erodible sediments. Urmia Lake is one of the largest salt lakes in the world, which is located in north western Iran and in recent years due to continuous drought and improper management of soil and water resources, is on the verge of extinction.

Unprecedented decrease in water of Urmia Lake in recent years is due to various factors, including the cause of unprecedented drought, dams, improper use of water resources in the lake basin and reducing the amount of inflow into the lake (surface inflows) In addition, rainfall on the surface of the lake) is one of the most important in relation to the outflows from the lake.



Fig 1. A) Image of Iran in Google Earth, B) Image of the lake on the Landsat satellite, C) Urmia Lake

## METHODOLOGY

Urmia Lake is located between 37° 9' north latitude and 45° 6' east longitude. This is the largest and saltiest permanent lake in Iran and one of the most supersaturated lakes in the world. Urmia Lake catchment is one of the first class catchments in terms of classification and has an approximate area of 51876 km<sup>2</sup>.

Due to the drying up of the lake water and the seasonal winds, the soils around the coastal areas showed a lot of salinity.

Table 1. Salinities of the areas around the east shore of the lake before the cultivation of salinity-resistant plants

Salinity (dsm <sup>-1</sup> )	9-23	23-30	30-37	37-43	43-50	50-120
Area (km <sup>2</sup> )	587	723	951	786	40	14
Percent (%)	18.9	23.3	30.6	25.4	1.3	0.5



Fig 2. Areas around the lake



Fig 3. A) Prepare the ground for planting, B and c) Shrubs and seedlings ready for planting

## RESULTS

By planting saline plants (Halophyte) in the region, in addition to being able to be used as a barrier against wind and prevent wind erosion, but also have a significant impact on the process of reducing soil salinity

Can be said that in one of the selected areas, the high volume of plantation has caused the salinity in this area to be estimated less than other areas.

The most important challenges are supplying the irrigation water of plant and sociological issues like resistance of people to accept the non-productive species

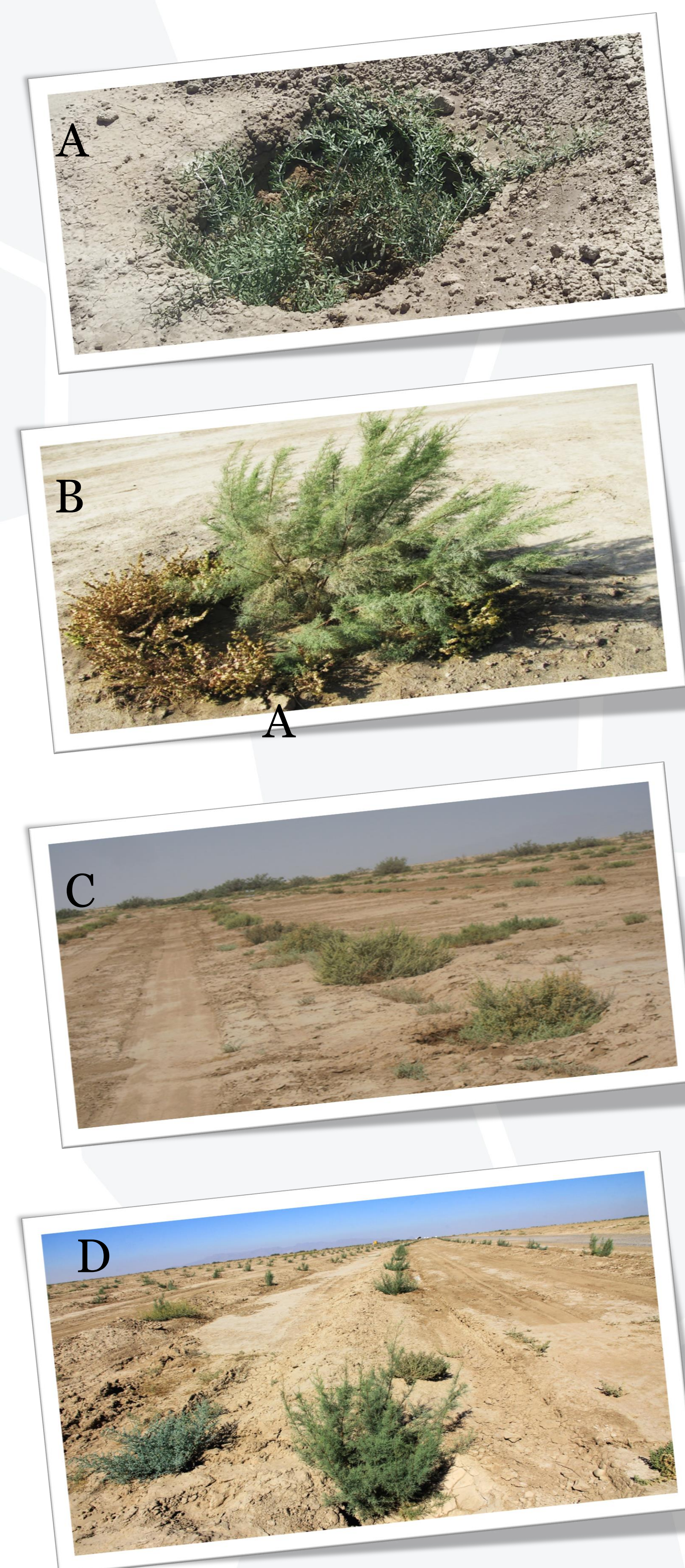


Fig 4. A) Halophyte B and c) Tamarisk D) Atriplex

Table 2. Salinities of the areas around the east shore of the lake after 4 years the cultivation of salinity-resistant plants

Salinity (dsm <sup>-1</sup> )	9-23	23-30	30-37	37-43	43-50	50-120
Area (km <sup>2</sup> )	527	657.8	823	711	30	8.4
Percent (%)	17	21.2	26.5	23	1	0.3

## CONCLUSIONS

In the first four years of the establishment of saline plants, according to Tables 1 and 2, changes in soil salinity are significant. The most important challenges are supplying the irrigation water of plant and sociological issues like resistance of people to accept the non-productive species.

GLOBAL SYMPOSIUM ON  
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