The 1st International Conference on New Ideas in Agriculture
Islamic Azad University Khorasgan Branch
26-27 Jan. 2014, Isfahan, Iran

THE EFFICIENCY OF POTASSIUM FERTILIZATION METHODS ON THE YIELD AND 100 SEEDS WEIGHT OF RICE PLANT UNDER SALINITY STRESS.

Mohiti, M[1]., Ardalan, M.[2]
[1]Islamic Azad University, Karaj Branch, Iran.
[2]University of Tehran, Iran.
E-mail: Mohiti_m@yahoo.com

Introduction

Salinity is a serious environmental problem which creates harmful effect on growth and plant metabolism. Salinization of paddy land in the coastal region may develop by advancement of sea or rising of the saline ground water to the upper surface of the soil. This problem is due to high levels of evaporation and salt accumulation in the root zone in arid and semi arid areas.

Material and Methods

This research was conducted in Iran Rice Research Institute in Guilan province. In this study pot farming of rice plant in open-air with purpose of comparing efficiency of foliar and soil application of potassium and its effect on yield and yield component of rice plant under stress salinity condition as a factorial test in form of Random complete block design with 3 replication and applying 4 salinity (tap water and salinities 2, 4 and 6 ds/m) and 4 methods of potassium application: a, spraying with distilled water as control; b, application of potassium on soil; c, potassium spraying and d, application of potassium on soil plus spraying.

Results and Discussion

Result showed that grain yield and shoots, 100 seeds weight in seeds and shoot significantly decreased with increasing salinity. This decrease can be due to the salinity effects that can lead to osmotic effect, decrease water availability, ion specific toxicity, change in nutritional balance, reduction of enzymatic and photosynthetic efficiency and other physiological disorders (Ashraf et al., 1991). Also, the salinity decreases the availability of nutrients in the soil (Lutts et al., 1999). The best method of K application was soil intake plus spraying method. Similar results have been reported by Khatun et al. (1995).

Keywords: Greenhouse, ground water, salinization, spraying.

REFERENCES

Ashraf MY, Khan MA, Naqvi SSM (1991). Effect of salinity on seedling growth and solute accumulation in two wheat genotypes. Rachis, 10: 30-31.

Khatun S, Rizzo CA, Flowers TJ (1995). Genotypic variation in the effect of salinity on fertility in rice. Plant Soil. 173: 239-250.

Lutts S, Bouharmont J, Kinet JM (1999). Physiological characterization of salt-resistant rice (Oryza Sativa L.) somaclones. Aust. J. 47: 835-849.