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ROLE OF ZINC IN SALT TOLERANCE OF RICE

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ABSTRACT

A pot experiment was conducted to assess the role of zinc in improving the salt tolerance in rice. Two varieties i.e. NIAB-6 and Basmati-370 were grown to compare. Three salinity levels i.e. control, 5 and 10 dS m^{-1} were developed with NaCl. Two methods of zinc application were used by dipping the seedlings in $ZnSO_4$ solution and soil application. Number of tillers, paddy and straw yield slightly increased in tolerant rice NIAB-6 than Bas-370. Plant tissue concentration of K, Na, Ca, Mg and Cl was higher in sensitive Bas-370. Nitrogen concentration in both the varieties was not affected by the treatments whereas Zinc had suppressive effect on P concentration.

INTRODUCTION

Being in the arid and semi arid region, Pakistan is facing the problem of salinity and sodicity. Out of 79.61×10^6 hectares of geographic area 14.79×10^6 hectares are irrigated while 5.7×10^6 of rice varieties was sown one month old seedlings of each variety were transplanted in pots. Zinc @ 0 and 8 Kg as $ZnSO_4.7H_2O$ ha^{-1} was applied through soil application or dipping seedling in 2 % $ZnSO_4$ solution for 15 minutes before transplanting. Each treatment had three replications. At maturity, data for number of tillers, paddy and straw yield were recorded. Chemical analysis for ionic concentrations of Na, K, Ca, Mg, Zn, P and Cl from cell sap was made. Data obtained was analysed statistically according to completely randomized design in factorial arrangement (Steel and Torrie, 1960).

Table-1. Original soil analysis

Properties	Units	Value
ECe	dS m^{-1}	1.7
pHs		7.9
Na	meq l^{-1}	4.9
K	-do-	1.2
Ca + Mg	-do-	6.2