

EFFECTS OF FERROUS TOXICITY ON SEEDLING TRAITS AND ION DISTRIBUTION PATTERN IN UPLAND AND LOW LAND RICE UNDER HYDROPONIC CONDITIONS

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Abstract	<p>Environmentally, nutritional disorders are the major constraints due to the change in soil pH for rice crop cultivated under different irrigation system. Iron toxicity is one of the famous nutritional disorders caused by the excessive uptake of ferrous ion in low pH under aerobic conditions. This research study was focused to measure the effect of different levels of ferrous stress on seedling traits, distribution of ferrous, potassium ions in two upland rice and three lowland rice varieties. The mean comparison of growth parameters were formulated using least significant differences, as well as the experimental treatments were compared by analysis of variance. Varieties showed significant differences for growth parameters; however, lowland rice varieties like Pokkali and Firat exhibited the minimum deterioration in growth parameters. The root length was significantly reduced under ferrous stress in all varieties. Ferrous accumulation was high in roots compared to aerial plant parts and flag leaves exhibited the minimum accumulations. Reduction of potassium reflected in all plant parts when an increased in stress was imposed. Upland rice varieties were found sensitive compared to lowland rice varieties. It is therefore; concluded that the growth parameters would be a reflecting index for ferrous toxicity in rice. Furthermore, the availability and uptake of potassium is improved, it may minimize the effects of ferrous toxicity.</p>
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