

**ZNIC CONCENTRATION AND UPTAKE BY TWO SORGHUM CULTIVARS GROWN UNDER TWO MOISTURE REGIMES IN RELATION TO ZINC FERTILIZATION**

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**ABSTRACT**

*A study pertaining to Zn application to two sorghum cultivars, grown under two moisture regimes was conducted. Zinc was applied @ 0, 1, 3, 9, or 27 mg kg<sup>-1</sup> soil. Zinc concentration and uptake by both the sorghum cultivars grown under the two moisture regimes increased with increase in levels of Zn application. Soil moisture levels and sorghum varieties did not show significant differences with regard to Zn concentration and its uptake by sorghum crop.*

**INTRODUCTION**

Most soils of Pakistan are alkaline and calcareous with low organic matter content (Khattak and Parveen, 1986). Such soils are usually conducive to nutrient deficiencies including Zn (Rashid et. al., 1987). A number of soil test procedures have been devised to determine the availability of soil Zn for plant growth, but no test is appropriate for all soil types (Cox and Wear, 1977). In general, soil tests for micronutrients have limited success (Jones, 1972).

In many cases, plant analysis is a more useful diagnostic tool than soil analysis. Whole shoots, when plants are 30 cm or less in height; or the most

**MATERIALS AND METHODS**

Research work reported in this paper was conducted in a greenhouse at Land Resource Research Institute, Islamabad. Soil used for study was of Missa series. The soil was loam in texture with pH 7.6, organic matter 0.4% and DTPA extractable Zn 0.43 mg kg<sup>-1</sup> soil. Five kg soil each was filled in pots and supplied with 400 mg N, 40 mg P, 290 mg K, and 0.5 mg B kg<sup>-1</sup> soil. Zinc was applied @ 0, 1, 3, 9, or 27 mg kg<sup>-1</sup> soil. Soil moisture levels at field capacity and half field capacity were maintained by the daily addition of distilled water. The two sorghum varieties used were Potohar-4-8 and ICSV-107.

Pots were arranged in split-split plot design with three replications, keeping moisture levels in main plots, varieties in sub-plots and Zn levels in sub-sub-plots. Four seeds were sown in each pot. Two plants were sampled at 30 cm height. Flag leaves of remaining two plants were sampled at head initiation stage. The remaining two plants were sampled at maturity. All the plant samples were washed with distilled water; oven dried at 70°C for 48 hours; weighed and ground in stainless steel