

EFFECT OF ZN LEVELS IN COMBINATION WITH MICROBIAL INOCULATION ON SOIL EXCHANGEABLE CA AND MG AND THEIR UPTAKE BY MAIZE

SUGANYA AYYAR¹ & SARAVANAN APPAVOO²

¹Research Associate, Water Technology Centre, Tamil Nadu Agricultural University,
Coimbatore, Tamil Nadu, India

²Professor, Department of Soil Science & Agriculture, Chemistry, Soil and Water Management Research Institute,
Kattuthottam, Thanjavur, Tamil Nadu, India

ABSTRACT

Field experiment was conducted in red soil in order to study the secondary nutrients availability such as calcium and magnesium in red soil by using of Arbuscular Mycorrhizal (AM) fungi and Zinc Solubilizing Bacteria (ZSB) in combination with graded levels of ZnSO₄. Treatment consisted of two factors viz., microbial inoculation (M₁: control, M₂: AM fungi, M₃: ZSB and M₄: M₂+M₃) and graded levels of ZnSO₄ (S₁: 0, S₂: 12.5, S₃: 25, S₄: 37.5, S₅: 50 Kg ha⁻¹ and S₆: 0.5% foliar spray @ 45 and 65 DAS) replicated three times in RBD. The results revealed that the exchangeable Ca and Mg content of soil were positively influenced by the microbial inoculation as well as the graded doses of ZnSO₄. These contents were decreased with the advancement of crop growth. Application of AM fungi (M₂) + ZSB (M₄) had highest uptake of Ca and Mg by maize grain and stover. Graded levels of Zn application enhanced the Ca and Mg uptake correspondingly. However, the increase was not significant beyond 25 kg of ZnSO₄ ha⁻¹.

KEYWORDS: Maize (*Zea mays* L.), Arbuscular Mycorrhizal (AM) Fungi, Zinc Solubilizing Bacteria (ZSB), Graded Levels of ZnSO₄, Secondary Nutrients, Ca and Mg Uptake

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