

Agronomic traits of forage maize (*Zea mays* L.) as influenced by zeolite application and spraying of nano-fertilizers

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ABSTRACT:

This experiment was conducted at the Islamic Azad University of Sanandaj, Iran. This split plot experiment is based on randomized complete block design with three replications. The main plots consisted of foliar spraying of nano fertilizers which included iron chelate, zinc, potassium and NPK fertilizers and control. The subplots consisted of the soil application of zeolite including 1kg m⁻², 500 g m⁻² and control. Results showed that the plant height improved with fertilizers applications under no application of zeolite. Plant height increased by 12% for Fe, 14% for K, 14% for zinc and 16% for macro elements (NPK) in non zeolite application treatment. The chlorophyll increased with zinc fertilizers applications under no application of zeolite, and it was increased by NPK fertilizer application under the low and high zeolite condition. The protein content increased with zinc fertilizers applications under no and low application of zeolite, and it was increased by NPK and iron fertilizer application under the high zeolite condition. The total biomass was increased with iron and NPK fertilizers applications under no application of zeolite. Total biomass increased by 30% for iron, 31% for potassium, 10% for zinc, 40% for NPK and 15% for control when zeolite application increased from 0 to 1000 g m⁻². The highest leaf (5556 kg ha⁻¹) and stem biomass (3851 kg ha⁻¹) was obtained in NPK treatment. Leaf and stem biomass was increased as zeolite levels. The highest leaf (5644 kg ha⁻¹) and stem biomass (3504 kg ha⁻¹) was obtained in 1000 g m⁻² treatment.

Keywords:

Iron, nano-fertilizer, potassium, zeolite, zinc.