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GROWTH AND BIOCHEMICAL RESPONSES OF OKRA (*ABELMOSCHUS ESCULENTUS*) TO PHOSPHORUS SOURCES SUPPLEMENTED WITH HUMIC ACID

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Phosphorus (P) is an essential nutrient for plant growth and is often the limiting nutrient in agricultural ecosystems owing to its low availability in soils. The present work investigates the stimulating effect of organic P sources; compost and poultry manure (PM) and rock phosphate (RP) supplemented with humic acid (HA) on the growth, yield, nutrient uptake and antioxidant activity of okra (*Abelmoschus esculentus*) under greenhouse condition. The experiment was laid out under Complete Randomized Design and replicated thrice; the treatments include: T₁ = control; T₂ = RP equivalent to 90 kg P₂O₅ ha⁻¹; T₃ = PM equivalent to 90 kg P₂O₅ ha⁻¹; T₄ = compost equivalent to 90 kg P₂O₅ ha⁻¹; T₅ = RP + PM equivalent to 90 kg P₂O₅ ha⁻¹ (50:50 ratio); T₆ = RP + compost equivalent to 90 kg P₂O₅ ha⁻¹ (50:50 ratio); T₇ = RP + PM + HA (RP + PM in 50:50 ratio equivalent to 90 kg P₂O₅ ha⁻¹ and HA @ 100 mg kg⁻¹ soil); and T₈ = RP + compost + HA (RP + compost in 50:50 ratio that is equivalent to 90 kg P₂O₅ ha⁻¹ and HA @ 100 mg kg⁻¹ soil). The results indicated that the plant height, shoot dry weight, leaf chlorophyll and pod yield were highest where RP and PM were supplemented with HA. Plant P uptake was maximum in treatments receiving compost either with or without HA application. Biochemical data regarding DPPH radical scavenging showed superiority of RP while the phenolic content showed dominance of RP + compost with the highest phenolic content (1.22 mg GAE/g). Maximum hemolysis was observed in PM treatment followed by compost and the least was recorded in RP + PM. The study reflects that the application of HA and integration of RP with organic P sources increased the okra yield and improved biochemical quality of pods.

BIOGRAPHY

Maqsood Ahmed starts his job as University faculty member in 1988 after his graduation. Later, he has completed his PhD degree in 2009 and Post Doc from Republic of China in 2013. He served as Director Advanced Studies and Research Board, Mirpur University of Science and Technology for more than 1 year. He also worked as Chairman Department of Biotechnology, MUST and now he is working as Dean Faculty of Arts since 3rd February 2017.

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