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Role of biosolids in sustainable development

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"Biosolids are organic solids that have been treated to stabilize organic matter and reduce disease causing organisms or pathogens". Biosolids result from physical separation and subsequent regulated treatment or digestion of the solid matter in sewage. Treatment produces either Class A or Class B designations. Akdeniz *et al.* (2006) analyzed biosolids and it had neutral pH 7.22, OM, N, P, and K, contents of 57.2, 2.7, 0.58 and 0.42% respectively.

Waste management has become a major environmental challenge, and land application of biosolids is generally considered the best option for disposal of biosolids because it offers the possibility of recycling plant nutrients, provides organic material, improves a soil's chemical along with physical properties, and enhances crop yields.

Diaz-Avelar *et al.* (2004) evaluated the use of bio-solids for land restoration and crop production as a potential solution to improve food production and floriculture production. In their study, the effect of acid treated sludge application at 15 t ha^{-1}, to marigold plants indicated 107 cm plant height with a growing speed of 1.01 cm d^{-1}, which is 20 times more as compared to control. Evaluation of Municipal Sewage Sludge Vermicompost (MSSV) on yield of two cultivars of tomato was done by Begum (2011). She revealed that application of 20 t ha^{-1} of MSSV resulted in increased plant height, number of branches and fruits per plant in tomato. Two field experiments were conducted at Pakenham and Mildura, Australia by David et al. (2011) on grapevine and pasture production. At both sites, soil Cd, Cu, and Zn concentrations linearly increased with increased biosolids application rate (from 9.5 to 85 t ha^{-1}) although not to the extent of exceeding soil quality guidelines. A field experiment was conducted on banana at the regional research pole of Pariquera-Acu, Brazil by Luiz *et al.* (2011). Results showed that biosolids completely substituted mineral N and P application. There was no increase in concentration of heavy metals viz., Cr, Ni, Pb and Cd in the index leaf of banana when biosolids were applied at the recommended N rate.

Biosolids can play a vital role in crop production due to its higher nutritional value. However, presence of some pollutants may affect crop production. Hence, use of biosolids after adopting feasible treatment technologies is necessary to avert its adverse impact on both crop production and human health for safe and healthy environment.

Biography

Praveen Solanki has completed BSc (Hon's) Agri. Now he is doing his PG (Environmental Science & Technology) in Acharya N. G. Ranga University, Hyderabad. He has published papers in some reputed journals and also attended many national and international seminars.

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