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Short communication

Dynamics of culturable microbial fraction in an Inceptisol under short-term amendment with municipal sludge from different sources

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ABSTRACT

Sewage sludge being a cheap source of plant nutrient is commonly applied by farmers and is being promoted for implementation of "waste to wealth" programme in India. It has diverse impact on soil microbial properties. The aim of this study was to assess the impact of application of sludge from three waste water treatment plants namely, Okhla (Sld-O), Keshopur (Sld-K) and Pappankallan (Sld-P) in National Capital Region (NCR), Delhi, India on various soil biological properties and bio-safety of crop produce. A pot culture experiment with eight treatment combinations (3 sludge × 2 doses [i.e. 11.2 mg kg^{-1} + 50% recommended NPK, 22.4 mg kg^{-1}] + recommended dose of NPK + absolute control) was conducted. The sludge amendment significantly improved the microbial biomass carbon, potential mineralizable nitrogen, enzyme activities (dehydrogenase, acid and alkaline phosphatase) as well as yield of *palak*. However, excess nitrate concentration (~100% higher than control) in post-harvest soils and contamination of *palak* leaves with *Escherichia coli* is a matter of great concern and should be monitored carefully for proper utilization of sludge in agriculture.