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Reuse and assessment of municipal wastes

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Oman Haya Water Company has developed its pioneering Kala Composting Plant to enable the efficient reuse of sewage bio-solids and green waste enabling their conversion to a compost product that can be used for agriculture, landscaping and energy generation. With Kala Compost the company is achieving the twin benefits of finding a practical way to reuse water and green waste that will benefit farmers, municipal authorities and individual gardeners, while finding a way to process waste that prevents the build-up of greenhouse gases, however high application of sewage biosolids could result in heavy metals accumulation and many health problems. Therefore, sewage biosolids applied to agricultural land must be treated and tested to determine nutrient content and to ensure they meet provincial quality standards. The objective of this study was to evaluate the effect of different fertilizers especially Kala compost on the quality of soil and crops. Moreover, utilize Kala compost for biogas generation. The study was conducted at Sultan Qaboos University, College of Agricultural and Marine Sciences, Agricultural Experiments Station open field with six commercial crops (cucumber, tomato, cabbage, lettuce, carrot and potato). Kala application improved soil physiochemical properties by increasing the water-holding capacity, reducing soil bulk density and adding mix nutrients compared to NPK fertilizer. Good plant growth was observed with higher plant production and better water productivity in Kala compared to NPK treatments. Generally, it can be concluded that Kala compost was a good media for plant growth supporting plant with many elements needed for high production. Chemical analysis did not show any problem of heavy metal accumulation either in soil or plant samples. Biologically, all tested crops were free from any microbial contamination. Using Kala compost as a fertilizer will support organic farming practices but farmers should evaluate its applicability with long run applications. The second phase of the project is to convert Kala compost to liquid fertilizer and produce biogas for energy generation.

Biography

Ahmed Al-Busaidi is a Researcher in Department of Soils, Water and Agricultural Engineering, College of Agricultural and Marine Sciences, Sultan Qaboos University, Oman. He has obtained his PhD (2007) in Bioenvironmental Science at Tottori University, Japan. He has more than 40 publications to his credit.

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