



Study on application of produced sewage sludge compost from of Isfahan wastewater treatment plant in agricultural lands

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Sludge production from municipal wastewater treatment plants should have quality standards before their disposal into the environment. Environmental specialists have classified sewage sludge as a hazardous waste because of high organic compounds and pathogenic organisms. They believe that sewage should be stabilized before disposal and so composting of sewage sludge is an effective and economical method to stabilize. Sewage sludge compost could be used to improve sewage structure and enrich the soil with nutrients. To evaluate the optimum conditions of aerobic composts, the mixture of dewatered sewage sludge from Isfahan municipal wastewater treatment plant and sawdust as bulking agent were used. Pilot scale study was performed in Isfahan wastewater treatment plant. To perform this research project, the dewatered sewage sludge with humidity between 78-82 percent was mixed with sawdust. Turning over method of the piles with one-week interval were applied to aerate the mixture. Temperature of the piles was monitored at different depths daily. Other parameters such as N, C, organic matters and pH were determined weekly. Total and fecal coliform and Salmonella were determined at the beginning and end of the composting process, also heavy metals were measured at the same time. The results of this study showed that after about fifteen days, temperature of the mixture reached up to 55 degree centigrade, and was stable for fifteen days. Humidity, organic matter, organic carbon and C/N ratio of the mixture decreased over the period of the study, due to increasing the temperature. Also organic matter and humidity mainly decreased in thermophilic phase. The number of total and fecal coliform and also Salmonella decreased to A class standard of U.S. EPA at the end of the operation. The results of the study also showed that this type of composting method is reliable and simple to schedule, with high flexibility and low order production. Organic compounds and pathogenic microorganisms reduced and EPA standards were reached during this project.

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