

Abstract

This work represents only a beginning in the experimental study of the management of sludge from a biological method that aims to produce energy and reduce the risks associated with land application of sewage sludge and mineral fertilizers. Several pathways exist for the disposal of sludge, but the choice must depend on the cost of installation, the origin of sludge, the added value of the resulting product and the potential impact of the industry accepted on the environment. The landfill (also called storage) is a low-rewarding and legally prohibited in many countries. However, application of composts obtained should not be done without confirming their hygienisation, their stabilization and maturity. In addition, the sludge compost should be free of phytotoxicity, with concentrations of heavy metals (Cu, Zn, Cd, Hg, Cr ...) and organic micro levels below international standards. Our work was performed at the national sanitation office of Boumerdes, the objective is, to assess the ability of the sludge treatment, to determine what treatments they undergo, estimate the risk of pollution and finally know their reusability for energy purposes. For this we conducted a study on the physico-chemical and bacteriological sludge and an analysis reports for three years ago, then an experimental study for an anaerobic digestion to produce biogas, finally, the analysis by the chromatogram and the spectra in scan mode of the biogas composition products, shows that methane is present with the bigger rate. Our results showed that organic matter is not negligible in most cases it is greater than 40%, favoring the development of pathogens. In this case, sludge requires a stabilization step to reduce rate of organic matter. The statistical study reports the purification plant of Boumerdes between the years 2008 and 2010, based on the volume of sludge produced by the station and organic matter content showed that energy efficiency is important if the biogas is used. Especially in the period beginning the month of March until September when the sludge is concentrated in organic matter