

## عنوان مقاله:

Utilization of drying beds to produce safe agricultural fertilizer from sewage sludge

## محل انتشار:

مجله بین المللی بازیافت مواد آلی در کشاورزی، دوره 12، شماره 4 (سال: 1402)

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## خلاصه مقاله:

**Purpose:** Sludge treatment and reuse as a fertilizer is of great significance in Gaza Strip. This study aimed to treat sludge generated at North Gaza WWTP, to produce rich nutrients fertilizer, to apply it in a greenhouse, and to compare its performance with different fertilizers. **Method:** The concept of drying beds was applied to ۱۵۰۰ kg of sludge, which was exposed to the sun for ۷۵ days; it was tested every ۱۵ days to measure quality parameters. **Results:** After ۴۵ days, complete removal of F.C., E-Coli, salmonella, and helminths was achieved. The treated sludge had NPK of ۳.۳، ۱۴ and ۱.۴% respectively. The treated sludge showed to be a good competitor to the commercial fertilizer that had NPK of ۳.۲، ۱.۹، ۲.۳ % respectively. The treated sludge and commercial fertilizer were tested for heavy metals; concentrations of Cd, Pb, Cu, Hg, Cr, Ni, and Zn in the treated sludge were ۱.۴، ۱۱۰، ۰، ۰، ۸۰.۵، ۲۶.۴ and ۱۳۶۹.۷ mg.kg<sup>-۱</sup>; while for the commercial fertilizer they were ۱.۶۷، ۱۴۱.۳، ۱۴۲، <۰.۰۰۱، ۱۴۴.۲، ۱۳.۴۵، and ۴۳۷.۵ mg.kg<sup>-۱</sup> respectively. **Conclusion:** Heavy metals' concentrations were in line with Palestinian, Jordanian, Iraqi, and most European Countries' standards. The treated sludge, local fertilizers, and mixtures were applied in a greenhouse, and development of selected crops was monitored. The seedlings' best development occurred when being fertilized with the treated sludge followed by commercial fertilizer. Crops fertilized by treated sludge were free from F.C. and E-Coli. The study recommended .further investigating efficient treatment techniques to shorten the treatment period

## کلمات کلیدی:

Sludge, Bio solids, Fertilizer, nutrients, Heavy metals, Drying beds

## لینک ثابت مقاله در پایگاه سیویلیکا:

