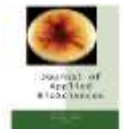

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Improvement of the agronomic value of faecal sludge by co-composting with *Typha domingensis* leaves in Cambérène wastewater treatment plant (Dakar/Senegal)

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ABSTRACT

Objectives: The aims to monitor the agronomic and sanitary stability of mixtures of faecal sludge and *Typha domingensis* (Cattailbiomass).

Methodology and Results: Four treatments (T) of different mixtures by volume of faecal sludge and *Typha domingensis* leaves were tested with 3 replicates for each. Analyses of physico-chemical, microbiological and parasitic parameters were carried out in order to evaluate the maturity, the agronomic value and the content of faecal coliforms and helminth eggs. Results show that temperatures vary between 36 and 48 °C in the thermophilic phase. The pH is about 7 in all windrows and the conductivity and humidity vary between 1500 and 1800 µs/cm and, 34 and 64% respectively. C/N ratios are below 12. Nitrogen contents vary between 17 kg/t and 14 kg/t, phosphorus from 2.5 to 2.7 kg/t and potassium from 0.79 to 1.45 kg/t. Composting eliminated a large part of the faecal coliforms (FC). However, only the T0 met the WHO standards for FC ($2.5x10^2$ CFU/g of compost). With regard to helminth eggs, only T0 and T1 comply with the WHO recommendation.

Conclusions and application of findings: The composts obtained are agronomically mature even if they have to be kept a little longer (for at least 6 months) in dry conditions to completely eliminate biological pollutants. They have a significant agronomic value that allows them to be used as fertilizer or organic amendment.

Key words: agronomic value, co-composting, compost maturity, faecal sludge, hygienic quality, *Typha domingensis*.