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## RECYCLING AND WASTE MANAGEMENT

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**Stabilization of preliminary anaerobically digested slurry post-storage: Dynamics of chemical characteristics and hygienic quality**Hongzhen Luo<sup>1</sup>, Tao Lv<sup>2</sup>, Hao Sun<sup>1</sup>, Shubiao Wu<sup>1</sup>, Pedro N Carvalho<sup>2</sup> and Renjie Dong<sup>1</sup><sup>1</sup>China Agricultural University, China<sup>2</sup>Aarhus University, Denmark

During the storage of anaerobically digested slurry derived from chicken and pig manure, dynamics of chemical characteristics and hygienic quality, particularly nutrients, heavy metals and bacterial pathogens were investigated. The average total solid (TS) content decreased by 3.6% and 24.1%, while soluble chemical oxygen demand (SCOD) decreased by 23.7% and 31.4%, in chicken manure and pig manure-digested slurries storage, respectively. A rapid increase in  $\text{NH}_4^+\text{-N}$  concentration from 1600 mg/L to 4800 mg/L in chicken manure-digested slurry and from 1200 mg/L to 1700 mg/L in pig manure-digested slurry was noted, particularly during the first 10 days of storage. A positive correlation between TS and heavy metal content in the digested slurry was clearly shown and the Cu, Zn, Cr and Pb content was closely associated with particle settlement during the whole storage process. However, increasing attention should be directed towards the heavy metal accumulation at the bottom section of the storage lagoon with higher TS content. The number of total coliforms and *Escherichia coli* in both the digested slurries decreased continuously during the whole storage period. A higher reduction rate during the storage of chicken manure-digested slurry may be due to the higher content of  $\text{NH}_4^+\text{-N}$ , which inhibited Gram-negative bacteria.

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