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Abstract

Development of thermophilic composting for maximizing NH_3 gas recovery would enable the production of a nitrogen source which is free from pathogen/heavy metal, for the cultivation of high-value microalgae. The present study examined the effect of NH_3 recovery, nitrogen mass balance, and microbial community dynamics on thermophilic composting of shrimp aquaculture sludge. The emission of NH_3 gas at 60 and 70 °C was 14.7 % and 15.6 %, respectively, which was higher than that at 50 °C (9.0 %). The nitrogen mass balance analysis revealed that higher temperatures enhanced the solubilization of non-dissolved nitrogen and liberation of NH_3 gas from the produced NH_4^+-N. High-throughput microbial community analysis revealed the shift of