Taiwan Livestock Res. 54(4)：231-238, 2021
DOI：10.6991/JTLR.202112_54(4).0002

Study on the treatment of wastewaters collected from indoor rearing operation of geese [1]

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Received: Aug. 13, 2020; Accepted: Jan. 3, 2022

Abstract

In view of the severe economic losses caused by the highly pathogenic avian influenza epidemic in the goose industry, the shift fromof feeding model from outdoor rearing to indoor rearing has become the inexorable trend. Tounderstand the differences of wastewater treatment system between traditional otudoor-rearing and indoor-rearing lab-scale tanks, operated in anaerobic and aerobic modes, , were used in current study to compare their performances for treatnment of wastewaters collected from indoor and outdoor geese-rearing operations. Different hydraulic retention time (HRT) for testing wastewater in the lab-scale tanks was adopted for the study. Results showed that with the anaerobic mode operated at a HRT of 5 days, treated wastewater with SS 110.0, BOD 60.2, and COD 476.0 mg/L, corresponding to removal rate of 94.5, 93.7, 80.4%, respectively, was obtained. With the aerobic mode operated at a HRT of 3 days, effluent wastewater with SS 89.0, BOD 29.0, and COD 201.0 mg/L and rate of 94.5, 93.7, 80.4%, respectively, was obtained. Wastewater treated by a full-scale tank operated in aerobic mode with a HRT of 3 days had SS, BOD, and COD values of 89.4, 39.0, 134.0 mg/L and removal efficiencies of 92.4, 94.5, 90.6%, respectively. This study concludes that geese-rearing wastewater can be treated by a fed-batch operation mode with a HRT of 3 days for the wastewater in the tank. The reuse of the treated wastewater is not recommended because the microbal contents in the waster exceed the standard of waterpool usage of 50 CFU/mL.

Key words: Goose wastewater, Indoor rearing, Treatment model.

(1) Contribution No. 2688 from Livestock Research Institute, Council of Agriculture, Executive Yuan.
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