

14th Proceedings of the Seminar on Veterinary Sciences, 19 – 20 October 2019

THE WASTEWATER CHARACTERISTIC STUDY FROM PIG FARMING IN KUALA LANGAT, SELANGOR

¹*Tan T.L., ²Khairina A.K., ²Muhamad H.B., ³Debra M.,
⁴Thamotharan. J., ¹Jamal A.H., ³Roslan M.Y.

¹Department of Veterinary Services, Central Regional Veterinary Laboratory, Bandar Baru Salak Tinggi, Sepang

²Department of Veterinary Services, Shah Alam, Selangor

³Department of Veterinary Services, Research & Innovations Division, Putrajaya

⁴Department of Veterinary Services, Livestock Commodity Development Division, Putrajaya.

*Corresponding author: tltan@dvs.gov.my

ABSTRACT

Pig farming wastewater is known to contain high concentrations of solids, organic matter and nutrients. However, studies on wastewater characteristics from pig farm final discharge point remain incommensurate. In this study, wastewater quality of different pig farms was investigated. Studies were carried out to investigate water quality parameters in wastewater effluent and assess their compliance with Environment Quality Act, 1974. The evaluation of wastewater quality was done by monitoring pig farming activities as well as collecting wastewater samples in Kuala Langat region that are managed by Department of Veterinary Services. There are 125 pig farms located in Kuala Langat, Selangor in total. Samples of two liters each were collected in polyethylene bottles at the outflow points of each pond between 9.00am till 1pm. Wastewater collected was then transported in an icebox back to laboratory for analysis. Methods used are in accordance with American Public Health Association (APHA). The parameters determined include pH, dissolved oxygen (DO), biochemical oxygen demand (BOD) and chemical oxygen demand (COD). Results shown that pH value ranged from 10 to 14, dissolved oxygen ranged from 0.2 mg/L to 18.8 mg/L whereas BOD5 ranged from 7.5 mg/L to 258.8 mg/L and COD were 67.1 mg/L to 1516.7 mg/L respectively. These data were found higher than the wastewater discharge regulations set by DOE (Malaysia) permissible limit of 100 mg/L for TSS, 50 mg/L BOD5 and 100 mg/L COD. Principal component analysis (PCA) was conducted to characterize the pollutant loadings. PCA demonstrates positive loadings on pH, BOD5 and COD and negative loading for DO. This indicates that pH, BOD5 and COD increase with DO reduction. High pollutant loading in pig farm wastewater can be alarming as it will cause unpleasant smell whilst harming the ecosystem. Wastewater discharge should be monitored from time to time in order to prevent environmental pollution and health hazards caused by pig farming wastewater contamination. Based on the results, wastewater treatment prior discharge is necessary to safeguard river ecosystem and to ensure sustainable pig farming.