

Evaluation of potential public health risk associated with waste water treatment in some Halal abattoirs of Malaysia

ABSTRACT

Background: Abattoir waste can be detrimental to humans and the environment if proper precautions are put in place. In general, the major environmental problem is linked to abattoir liquid wastes which serve as vehicle for dissemination of pathogenic microorganisms. Epidemiological investigations have implicated food and water as most common vehicle for infections cause by pathogens such as E.coli O157: H7. **Method:** A cross-sectional study was performed to assess potential health risk of liquid waste disposal from some selected Halal abattoirs in Malaysia. A total of 120 waste water samples were collected. Total coliform count was performed to determine the levels of pollution before and after filtration. Cultural, Biochemical and serological tests were used for identification and characterization of the isolates. **Results:** Results showed that the abattoir located in Dungun in Terranganu region had the highest cfu/ml before (2200) and after waste water filtration while Senawang abattoir in Negeri Sembilan had the lowest. Highest occurrence rate of E.coli were recorded in Shah Alam, Banting and Tampin(40% each). Non-O157: H7 Escherichia coli were found to be present in almost all the abattoirs before waste water filtration. Samples collected after discharge revealed that five of the abattoirs had 100%. Other pathogenic bacteria isolated from the abattoirs include Salmonella entritidis and Citrobacter freundii. **Findings:** Occurrence of pathogenic bacteria coupled with increased total bacteria count have indicated alarming risk of dissemination of harmful bacterial into the environment. **Conclusion:** Effectiveness of waste water treatment was found to be very low in most of the abattoirs from the assessment.

Keyword: Waste water; Escherichia coli; Water treatment; Public health; Risk assessment