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Determining ammonia nitrogen decay rate of Malaysian river water in a laboratory flume (Article)

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Abstract

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There is lack of information regarding ammonia nitrogen (AN), (i.e. NH₃-N) decay rate of river water in tropical regions like Malaysia. AN decay rate is a very important kinetic parameter to estimate NH₃-N, nitrate nitrogen (NO₃-N) and dissolved oxygen concentrations of river water by using computer models. This study presents determination of ammonia nitrogen decay rate of river water in the tropical environment of Malaysia. A laboratory flume was used to conduct twelve experiments. The flume was used to represent the turbulent condition of a typical river. Ammonia nitrogen decay rate for the tropical environment of Malaysia was observed to be between 0.194 and 0.554 per day. Median value of AN decay rate was 0.26 per day, which is slightly lower than the global median value of 0.295 per day. To check the accuracy of flume experiments, the AN decay rate of Pusu River obtained from the flume experiment was used to calibrate and validate ammonia nitrogen concentration of the river by using water quality analysis and simulation program (WASP). Very good calibration and validation results were achieved, which substantiated the accuracy of the flume experiments. © 2017, Islamic Azad University (IAU).

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[Ammonia nitrogen](#) [Decay](#) [Laboratory flume](#) [Tropical region](#) [Water quality modeling](#)

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[Tropics](#) [Water quality](#)

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