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DETERMINATION OF THE SEASONAL VARIATION OF METHANE EMISSION FROM RAMIN HASSAN AND RAMIN HUSSAIN MUNICIPAL SOLID WASTE DISPOSAL SITES IN KANO METROPOLIS, NIGERIA

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Abstract

This study assessed the levels of Methane emission at two (2) municipal solid waste disposal sites in the Kano metropolis. The study was conducted using Crowcon – Gasman "FL" for a period of two seasons of the year (cool dry season - the Harmattan [January 2018] and hot dry season [April 2018]). The monitoring took place in the first three consecutive days of those months. The Crowcon–Gasman "FL" monitoring was carried out during the morning (0700 hours to 1000 hours, local time) and afternoon (1300 hours to 1600 hours, local time). First, for each period, and over the sites the monitoring was carried out at about the centre of each disposal site, and then one each at 100m away from the centre at the four cardinal points (North, East, South, and West). This made a total of five readings per site, per period for each observation day. The monitoring points over disposal sites were labelled as A1, A2, A3, A4, and A5, where A1 is the point at the centre, A2 at the North, A3 at the South, A4 at the West and A5 is the point at the East. The mean of the five readings constituted the average for each site for a day and each period of the month. During the monitoring, the Crowcon – Gasman "FL" was held within 30 to 60 cm above the ground surface. This is because, above 60 cm, methane emission to the atmosphere decreases. The concentration of Methane emission was recorded in percentages (lower explosive limit (LEL)). The results from the two disposal sites showed the mean value of Methane emission which occurred during the hot dry season (24.95%). Following the study, continuous monitoring of Methane emissions from the disposal sites during the hot dry season is recommended.

Keywords: Crowcon–Gasman "FL", Kano metropolis, Methane emission monitoring, Solid waste disposal