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The Performance of Batch Anaerobic Co-digestion under Different Salt Concentrations

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The effect of chloride sodium concentrations on anaerobic digestion of kitchen waste and waste activated sludge was investigated. The biogas production performance, the corresponding biogas production analysis, and sodium salt effect were studied, and the degradation efficiency was analyzed. With the increase of sodium salt concentrations. The highest biogas yield of (1321.5ml) was found with salt addition (7.2 g), while the lowest was obtained with the addition of (1.2g) NaCl the biogas production was (1023.61 ml). where the highest gas production of the concentration of (7.2g) while the lowest production was within the concentration of 1.2 g, gas production has reached all five reactors (135.65 ml, 79.31ml, 114.65 ml, 125.64ml, 160.65ml) for (1,2,3,4,5) reactors respectively. When NaCl presented in the reactors, the contents of carbohydrate and protein were highly improved. When the rate of NaCl rose from (1.2 to 7.2 g). Those data proposed that the adding of NaCl led to the forming of organic matters. It was also indicated that the effect of NaCl increased the content of “protein and carbohydrate" in waste activated sludge "WAS" digestion, and a higher concentration of NaCl led to higher dissolve substrates. The target of this examination was to explore the attribute of anaerobic co-processing of pig fertilizer (PM) with dewatered sewage muck (DSS). The cluster test was led under mesophilic (37 ± 1 °C) conditions at five diverse PM/DSS unstable strong (VS) proportions of 1:0, 2:1, 1:1, 1:2, and 0:1. The group test assessed the methane potential, methane creation pace of the PM co-assimilation with DSS at various blending proportions. The main request active model and changed Gompertz model were likewise acquainted with anticipate the methane yield and assess the motor boundaries. The ideal blending proportion of PM in with DSS was 2:1 and the aggregate methane yield (CMY) was 315.8 mL/g VSadded, which is more prominent by 82.4% than that of processing DSS alone. This outcome may be because of the positive cooperative energy of PM with DSS, which brought about a functioning microbial action and a higher hydrolytic limit of DSS. The frameworks with co-processing of PM and DSS was shown to be more steady. The changed Gompertz model (R2: 0.976–0.999) demonstrated a superior fit to the test results and the determined boundaries showed that the co-absorption of PM with DSS extraordinarily improved the methane creation rate and abbreviated the viable methane creation time.

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