

TURKEY LITTER CHARACTERIZATION AIMING THE ENERGETIC VALORIZATION THROUGH BIOGAS PRODUCTION

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Abstract: Waste from the production of turkeys in confinement can present as an alternative source of energy through anaerobic digestion. Turkey meat production was about 159,000 tons in 2019, and currently, 74% of its production is destined for the domestic market and 26% for exports. This research was aimed to i) perform the physical, chemical, and Biochemical Methane Potential (BMP) characterization of turkey litter, ii) obtain indicators for the Brazilian potential of methane generation from turkey litter, and iii) evaluate the influence of different turkey litter management with 50, 120 and above 400 days of litter used in bird production. The kinetic tests to evaluate the PBM of the three samples were conducted at batch and mesophilic temperatures. The highest concentration of volatile solids was found for the 50-day turkey litter (32.2%, $m\ m^{-1}$), which also resulted in higher energy potential (BMP = $289 \pm 14\ L_N\ CH_4.kgSV\ adic^{-1}$, $34.3\ Nm^3\ CH_4\ day^{-1}$ corresponding to electricity generation of $71.3\ kWh\ day^{-1}$). The indicators obtained from turkey litter for the Brazilian methane generation potential were from 7.5 to 31 million m^3 of CH_4 with the reuse of waste from different days of housing from turkey meat production in the years 2010 to 2017.

Keywords: Turkey litter, alternative source, biochemical methane potential.



Video presentation