

Biogas Recovery from Poultry and Piggery Waste

Fossil fuel, the current major source of energy, meets 88% of global energy demands. Its negative effect on the atmosphere through the release of greenhouse gases has led to an all-out search for alternative clean energy sources. This study focuses on exploring the potential recovery of biogas from poultry and piggery wastes and investigates improvements made in its production involving different digestion techniques. The study analysed the biogas production procedures of poultry and piggery waste from 2010 to 2020. Thirty works on recovery of energy from these organic wastes were carefully studied with specific objectives: extract the improvements made through co-digestion with various substrates, explore the different anaerobic digestion methods and possible results in the literature, and examine the different models adopted in the literature and the factors that affect the model sensitivity. It was observed after analysis that substrates co-digested alongside poultry and piggery waste and the models used greatly influenced the amount of biogas released. The study answered the questions regarding various other factors influencing production of biogas with temperature values of 25–50°C, pH used (6.3–8.7), hydraulic retention time (25–350 days) and total solids concentration (2–90%) across the literature reviewed. The produced biogas in the majority of the literature was improved by 11.04–28.78%. This work has contributed in no small measure to the efficacy of biogas production from poultry and piggery waste and will contribute to United Nations Sustainable Development Goals, with specific emphasis on goals 7, 12, and 13, which will boost the drive of national governments on sustainability.