

Abstract

Biogas can be produced from vegetable and fruit wastes from marketplaces, inoculated with slaughterhouse waste at different temperature ranges. In the current study, biochemical methane potential of twenty different market wastes were calculated using a web-based application developed using R programming language. The proximate analysis of the substrates was carried out using standard procedures, while the microbial community in the rumen fluid used as inoculum was done using standard plate method. The substrates digestibility was calculated using COD, volatile matter and lignin contents. The theoretical biogas generated from market wastes was obtained using macro-molecular composition i.e., crude fat, proteins, fiber and carbohydrates loaded to online biogas application. The proximate composition of the substrates showed that carbohydrates levels was higher in all the feed-stocks compared to proteins and fats. The moisture levels were in the range of 74.31-95.86% for all the wastes. Low percentages of proteins and fats were observed at 0.52 -3.49% and 0.09-1.54%, respectively. The theoretical methane obtained from the market wastes was higher in avocado at 65.52 % and lowest in cabbage at 50.90%. The results obtained indicates that the methane potential of market waste heavily depend on the macro-nutrient composition of the substrate. The study recommends application of online based application to investigate the methane potential of substrates before carrying out the experiment in the laboratory