

## Variation in methane concentration produced from anaerobically digested vegetables

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**Abstract:** Anaerobic fermentation is a highly promising technology for converting biomass waste into methane, which may directly be used as an energy source. Attempts have been made to optimize various parameters in order to determine the most favorable recipe for the maximum biogas production from the fermented vegetable waste. The biogas production from many types of vegetable waste such as zucchini, orange peel, tomato, potato, and rice was studied in batch digesters. The effect of adding chicken dung and sludge to vegetable on the concentration of methane in the produced biogas was investigated. The experiments were conducted at room temperature (20? C) and at 35? C. The results revealed that methane concentration goes through maximum value with time. This maximum value is obtained faster when the rate of digestion is faster. The concentration of methane in the biogas produced is as follows: potato>rice>tomato>zucchini>orange peel. The concentration of methane gas increases as chicken dung and sludge is mixed with the vegetable with better results are obtained from chicken dung. The maximum value of methane concentration is reached faster in the presence of chicken dung and sludge. For both chicken dung and sludge, the maximum value is reached at the same time.