

Abstract

The two important parameters used in estimating the degree of organic pollution in waste waters are the biochemical oxygen demand (BOD) and the chemical oxygen demand (COD). The determination of BOD is tedious and time consuming. Its precision is poor since it depends on biochemical factors. But the determination of COD is usually precise, time saving and is not dependent on biochemical factors.

The main objective of this research study was to investigate the possible existence of any consistent correlation between BOD and COD for waste waters from different food processing industries. As a preliminary study, synthetic samples of water containing glucose and phthalate were analysed separately. The existence of a significant positive correlation between BOD₃ and COD for two synthetic samples was observed. The correlation coefficient (r) of glucose was found to be 0.97 and that of phthalate 0.96. No correlation between viable bacteria counts and BOD₃ was observed.

The correlation coefficients were also obtained for samples of effluents from three different food industries, namely, non alcoholic carbonated beverage with an ice cream factory ($r=0.87$), fruit and vegetable processing factory ($r=0.93$) and dairy product factory ($r=0.89$).

As a correlation existed between BOD₃ and COD, an estimate of BOD₃ could be obtained in a few hours through the determination of COD and that would lead to a substantial reduction of the time required, the man power and the cost.