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## NITROGEN AND PHOSPHORUS REQUIREMENT IN ANAEROBIC PROCESS: A REVIEW

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### Abstract

Anaerobic processes have been successfully applied in the treatment of municipal and industrial wastewaters. Judicious use of nutrients in anaerobic treatment has not been systematically investigated. The optimal nutrient dosage for anaerobic wastewater treatment systems is largely unknown. In this paper, COD:N:P ratio used by various researchers in anaerobic wastewater treatment systems for treating different types of wastewaters are compiled and critically analyzed. In order to have uniformity, concentrations of carbon, nitrogen and phosphorus have been converted into equivalent terms as COD:N:P and ranges for this ratio for all the constituents of nitrogen and phosphorus with respect to carbon (COD) are given. Phenol COD represents a substrate which is difficult to degrade. Phenol can be found in various effluents resulted from industrial activities, such as: pharmaceuticals, pesticide, dye manufacturing, synthetic chemicals, coal gasification, coke production, fertilizer, and pulp and paper. The author has attempted for treatment of phenolic wastewater a representative of the industrial wastes which lacks nutrients and requires addition of nutrients such as nitrogen and phosphorus. The optimum COD: N: P ratio of 300:1:0.1 for phenolic wastewater has been reported. It is hoped that the information presented in this study would facilitate in maintaining the COD: N: P ratio in anaerobic processes.

*Key words:* nutrients, nitrogen, phosphorus, phenol, wastewater

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