

Chemical coagulation and biological techniques for wastewater treatment

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Abstract. This paper reports the effectiveness of chemical coagulation and biological techniques for the treatment of wastewater from industrial and agricultural operations. Agricultural husbandry has been reported to produce wastewater that has high content of chemical oxygen demand (COD), biological oxygen demand (BOD), turbidity as well as organic and inorganic pollutants. A comparison on the use of organic and inorganic based coagulants as well as the optimum conditions required for high percentage removal efficiency of pollutants from wastewater has been reviewed. At optimum experimental condition, ferric chloride coagulants were reported to yield 98, 95, 93 and 50 % removal of color, turbidity, iron and manganese. Moreover, chemical coagulation, electrocoagulation and biological methods have been reported to display a close range in their capacities for removing pollutants from wastewater. However, biological method was observed to be highly effective in the removal of pollutants from wastewater but requires more time and produces lesser volume of sludge, when compared to chemical method in the treatment of wastewater.

Keywords: wastewater; coagulation; removal efficiency; pollutants; sludge; biological techniques; electrocoagulation.

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