

**F/M (Food/Mass) RATIO INFLUENCES AND
DO (Dissolved Oxygen) CONCENTRATION TO
MICROORGANISM'S FILAMENT GROWTH AND COD REMOVAL
IN ACTIVATED SLUDGE PROCESS
(GLUCOSE WASTEWATER PRODUCT CASE STUDY)**

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Abstract

Activated sludge process is an aerobic biology process. This process is functioned to treat waste water by bacteria helped as its food. F/M ratio and dissolved oxygen (DO) concentration has a big influence to filament microorganism growth in activated sludge process. It because there are exaggerates growth which causes bulking sludge. High SVI value indicates bulking sludge. The aim of this research are to know the influences of F/M ratio and DO concentration to microorganism's filament growth and COD removal in activated sludge process. This research is using reactors which consist of 5 liters volume aeration tank and 2,5 liters volume clarifier tank. Waste product which is used is 534,24 mg/l. COD concentration artificial glucose waste water product. The independent variable of this research are F/M ratio(g COD/g MLSS.day) : (0,10-0,24), (0,24-0,38), (0,38-0,52), (0,52-0,66), (0,66-0,80) and DO concentration (mg/L) : (0,5-1), (1-1,5), (1,5-2), (2-2,5), (2,5-3). According result of this research, the best SVI's value is 47,83 mL/g which happened at DO concentration (2,5-3) mg/L and F/M ratio (0,38-0,52) g COD/g MLSS.day. High SVI value in low F/M ratio, possibility caused by microorganism filament present. High SVI value caused effluent COD concentration decrease which caused reducing COD efficiency in activated sludge system.

Key Word : DO Concentration, Activated Sludge, SVI, F/M Ratio, Microorganism Filament.