

Nittaya Singhawong 2010: Effects of Activated Sludge from Beverage Production Plant on Growth and Yield of Rice. Master of Science (Environmental Science), Major Field: Environmental Science, College of Environment. Thesis Advisor: Assistant Professor Suthep Thongpae, Ph.D. 90 pages.

The effects of activated sludge from beverage production plant with and without chemical fertilizer on growth and yield of rice was investigated. Pot experiment was carried on 4×3 Factorial in CRD with 3 replications. Two factors consisted of 4 rates of activated sludge 0 2 4 and 6 ton/rai and 3 rates of chemical fertilizer included none, low rate and high rate of recommended formula. The experiment was established in greenhouse at Department of Soil Science, Faculty of Agriculture Kasetsart University during November 2008 to February 2009.

The study indicated that activated sludge contained total content of 2.73%N, 14.66%P₂O₅ and 0.60%K₂O and total content of Pb Cd Hg and As were 278.30 19.20 4.49 and 3.54 mgkg⁻¹ respectively. As for the growth of rice at PI stage, the application of activated sludge did not effect plant height but increased number of plant highly significant. Whereas the application of chemical fertilizer increased both plant height and number of plant highly significant. The interaction of both factors resulted no significantly difference. At harvesting stage, the application of activated sludge and also chemical fertilizer increased straw weight highly significant. But only the application of chemical fertilizer resulted the increment of grain weight highly significant. However, high rate of chemical fertilizer gave the heighest grain weight when applied together with low rate of activated sludge because the application with high rate of activated sludge resulted the excessive N phenomenon of rice. The application of activated sludge and chemical fertilizer did not increase the concentration of Pb Cd and Hg in rice grain except As that tended to decrease with the application of chemical fertilizer but tended to increase with the application of activated sludge. However, the concentration of these heavy metals in rice grain are lower than the critical level for food according to Ministry of Public Health (1986).

Student's signature

Thesis Advisor's signature