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WARICH WEERAWATTANAPHONG : NUTRIENT REDUCTION FROM POULTRY WASTEWATER BY GREEN ALGAE : *Chlorella* spp.
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A study of the efficiency of removing nitrogen, phosphorus and COD from poultry wastewater by using *Chlorella* spp. was conducted. Three levels of initial algal density of the *Chlorella* spp. ($5*10^6$, $5*10^7$ and $5*10^8$ cells/ml) were used and compared to each other at the 3^{rd}, 6^{th}, 9^{th} and 12^{th} days of the experimental period.

The results indicated that the initial density levels of *Chlorella* spp. had statistically significant effects on the removal efficiencies of nitrogen and phosphorus (P-value <0.05) whereas the removal efficiency of COD was not significantly affected (P-value >0.05). The initial algal density of about $5*10^8$ cells/ml produced the highest removal efficiencies of nitrogen, phosphorus and also COD.

Furthermore, the removal efficiencies of nitrogen, phosphorus and COD also had positive relationships with the length of the experimental period (R = 0.917, 0.9128 and 0.8516 respectively). The longer the experimental periods, the higher the removal efficiencies. The highest removal efficiencies of nitrogen and phosphorus were at the experimental period of 9 days. After a period of 9 days for the initial densities of *Chlorella* spp. of approximately $5*10^6$, $5*10^7$ and $5*10^8$ cells/ml, nitrogen removal efficiencies were 72.32, 80.89 and 88.22 percent respectively, whereas the removal efficiencies of phosphorus were 57.53, 63.35 and 77.58 percent respectively. In contrast, the highest COD removal efficiencies were achieved at the 12^{th} experimental day, with the efficiencies of 55.42, 61.54 and 71.87 percent for the respective initial densities.