

Abstract

The study of the concentrations of cation (aluminum, iron) and anion (chloride, phosphate nitrate and sulfate) in surface water from paddy field, abandoned shrimp pond and peat swamp in Pakpanung river basin was carried out. The water samples were taken 4 stations from each above areas during low water quantities (August 2006) and high water quantities (December 2006) for the analysis of aluminum, iron, chloride, phosphate, nitrate, sulfate, pH, conductivities, salinity, turbidity and transparency. The results were showed that the concentrations of aluminum were ranged from 0.394 - 10.147 mg/l, with the highest value from the area of peat swamp forest, the concentrations of iron were ranged from 3.69-337.78 mg/l with the highest value from paddy field, the concentrations of chloride were ranged from 2.00-122.96 mg/l with the highest value from abandoned shrimp pond, the concentrations of phosphate were ranged from 0.050-10.630 mg/l with the highest values from paddy field, the concentrations of nitrate were ranged from 0.0100-0.4345 mg/l with the highest value from paddy field and the concentrations of sulfate were ranged from 6.61-167.89 mg/l. with the highest value from peat swamp forest area. The results of the relationship between aluminum and sulfate were showed highly statistically significant related ($r=0.927$) with the equation of $Al^{+3}=14.695 (SO_4^{-2})+29.368, (R^2=0.8591)$, the relationship between iron and phosphate showed statistically significant ($r =0.717$) with the equation of $Fe^{+3}=0.0254(PO_4^{-3})+0.8074, (R^2=0.5137)$ and the relationship between iron and nitrate showed highly statistically significant ($r=0.719$), with the equation of $Fe^{+3}=0.0007(NO_3^-)+0.0575, R^2=0.5166$

As the results of during high water quantities, pH values from the peat swamp forest were as low as 3.84-5.97 resulting in high values of the concentrations of aluminum and sulfate. Therefore, the government should plan to hold water in peat swamp forest for over and over.