Abstract

This study was focused on the relationship between peatland catchment areas and Al with the aim of providing a better understanding on how Al occurrences in natural ecosystem had impacted treated water supply. For some major development areas in Sarawak, the only available water sources are of peat waters. The peatland areas of the state's coastal zones are often characterized by high S^{2-} contents and Fe Al complexes. Thus, the objectives of this study were to; (1) quantify the levels of Al and other trace metals in raw and treated water from peat and non-peat sources and 2) quantify the levels of organic matter and nutrients in raw water from peat and non-peat sources. The study was conducted at four selected catchment areas in Mukah, Sarawak. In particular, this study showed that the treated and raw water sources from both peat and non-peat sources have high levels of Al, ranging from 0.089 to 3.458 mg/L for raw water and 0.235 – 4.574 mg/L for treated water. However, results showed that treated water from two of peat water sources is significantly higher in mean levels of Al as compared to before treatment in both sampling trips. Treated water from non-peat source also was significantly lower in mean levels of Al than the treated water from peat sources. Al levels in peat raw water were significantly correlated with the level of Cn, Cr, DO, Fe, NH_3, and TP. Whereas, Al level in treated water on the other hand was found to be correlated with Cn, Pb, Mn, pH, Tm and Tb.

Abstrak

Kajian ini adalah bertujuan untuk mengkaji hubungkait antara kawasan tadahan air paya dan kewujudan Al di keadaan semulajadi yang kemungkinan member kesan kepada air terawatt yang menggunakan sumber ini. Untuk sesetengah kawasan pembagunan pesat di Sarawak, satu-satunya sumber air adalah dari kawasan air paya. Kawasan paya di kawasan persisiran selalunya dikategorikan mengandungi S^{2-} yang tinggi and komplek Fe Al. Oleh itu, objektif kajian ini adalah untuk;(1) mengkaji kewujudan Al dalam air mentah dan terawat dari punca kawasan air paya dan air bukan paya dan (2) mengkaji kewujudan bahan organik dan nutrisi dalam air mentah dari punca kawasan air paya dan air bukan paya . Kajian ini dijalankan di empat kawasan punca air di Mukah, Sarawak. Melalui kajian ini, ia menunjukkan bahawa air mentah dan air terawatt mengandungi aluminum yang tinggi, dalam kadar 0.089-3.458 mg/L dalam air mentah dan 0.235-4.574 mg/L dalam air terawatt. Walaubagaimanapun, keputusan menunjukkan bahawa air terawat berpunca dari dua kawasan air paya adalah lebih tinggi dalam jumlah Al berbanding sebelum dirawat pada kedua-dua masa persampelan. Air terawatt berpunca dari kawasan bukan paya pula ,menunjukkan jumlah Al yang lebih rendah berbanding air terawatt berpunca dari kawasan paya. Kandungan aluminium dalam air mentah dikaitkan dengan Cn, Cr, DO, Fe, NH_3, dan TP. Manakala Al dalam air terawat pula dikaitkan dengan Cn, Pb, Mn, pH, Tm dan Tb.