

KAJIAN KANDUNGAN KUPRUM, PLUMBUM DAN MERKURI DALAM AIR
DI TASIK KENYIR, TERENGGANU

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Kajian kandungan kuprum,plumbum dan merkuri dalam air di
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**KAJIAN KANDUNGAN KUPRUM, PLUMBUM DAN MERKURI
DALAM AIR DI TASIK KENYIR, TERENGGANU**

Oleh

LIEW SOON LAI

**Laporan projek ini merupakan sebahagian daripada keperluan
untuk mendapatkan
Ijazah Bacelor Sains Perikanan**

**Fakulti Sains Gunaan dan Teknologi
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Penghargaan

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Abstrak

Kajian kandungan Cu, Pb dan Hg dalam air di Tasik Kenyir telah dijalankan antara bulan Mei – November 1999. Kandungan Cu dan Pb (terlarut, partikulat dan total) dalam air dianalisis melalui teknik “Solvent Extraction” manakala kandungan Hg dalam air pula dianalisis melalui teknik AAS Pemelowapan Sejuk.

Sampel air yang diambil dengan menggunakan penyampelan mercos pada kedalaman yang ditentukan dituras melalui membran turas 0.45 μm secara “in-situ” dengan menggunakan gas Ar untuk analisis kandungan logam partikulat logam dan terlarut. Selain itu, parameter air seperti DO, suhu dan pH diambil semasa penyampelan sampel air dijalankan.

Kajian menunjukkan kandungan logam dalam air yang dikaji adalah sangat rendah dan di bawah tahap keselamatan bagi air minum. Hampir keseluruhan logam yang hadir dalam air adalah dalam fasa logam terlarut. Pada kedalaman di mana DO, suhu dan pH menurun secara mendadak di zon termoklin kandungan Cu, Pb dan Hg dalam air didapati meningkat kepekatannya dalam fasa terlarut.

Kandungan Cu total, Cu terlarut dan Cu partikulat dalam air adalah dalam julat antara 1.488 – 30.56 μgL^{-1} , 0.110 – 17.42 μgL^{-1} dan 0.0006 – 0.0765 μgL^{-1} masing-masing. Kandungan Pb total, Pb terlarut dan Pb partikulat dalam air pula adalah dalam

julat antara $0.435 - 3.984 \mu\text{gL}^{-1}$, $0.246 - 3.748 \mu\text{gL}^{-1}$ dan $0.0007 - 0.339 \mu\text{gL}^{-1}$ masing-masing. Kandungan Hg dalam air menunjukkan julat antara $0.013 - 0.739 \mu\text{gL}^{-1}$.

Measurements of Cu, Pb and Hg in Kenyah Lake was carried out between May and November 1998. Dissolved, particulate and total Cu and Pb in water were analysed by the Inductively Coupled Plasma technique whereas Hg was analysed by Cold Vapor AAS.

Water samples collected at various depths using a Meters sampler were filtered through Whatman GF/C and analysed for particulate and dissolved metals. Water quality parameters such as DO, temperature and pH were measured during water sampling.

The study shows that the concentrations of the metals increased with depth from the surface level for drinking water. Almost all the metals in the water were in the dissolved form. At the depth where DO, temperature and pH were lowered strongly in the shallow zone, the concentrations of Cu, Pb and Hg increased in the dissolved phase.

Concentrations of total, dissolved and particulate Cu in water were between $0.435 - 3.984 \mu\text{gL}^{-1}$, $0.246 - 3.748 \mu\text{gL}^{-1}$ and $0.0007 - 0.339 \mu\text{gL}^{-1}$ respectively. Concentrations of total, dissolved and particulate Pb in water were between $0.435 - 3.984 \mu\text{gL}^{-1}$, $0.246 - 3.748 \mu\text{gL}^{-1}$ and $0.0007 - 0.339 \mu\text{gL}^{-1}$ respectively. Concentrations of Hg in water were between $0.013 - 0.739 \mu\text{gL}^{-1}$.

Abstract

Measurements of Cu, Pb and Hg in Kenyir Lake was carried out between May and November 1999. Dissolved, particulate and total Cu and Pb in water was analysed by the Solvent Extraction technique whereas Hg was analysed by Cold Vapor AAS.

Water sampels collected at various depths using a Mercos sampler were filtered "in-situ" under Ar gas and analysed for particulate and dissolved metals. Water quality parameters such as DO, temperature and pH were measured during water sampling.

The study shows that the concentrations of the metals measured were lower than the safe levels for drinking water. Almost all the metas in the water were in the dissolved form. At the depth where DO, temperature and pH were lowered abruptly at the thermocline, the concentrations of Cu, Pb and Hg increased in the dissolved phase.

Concentrations of total, dissolved and particulate Cu in water were between 1.488 – 30.55 μgL^{-1} , 0.110 – 17.42 μgL^{-1} dan 0.0006 – 0.0765 μgL^{-1} respectively. Concentrations of total, dissolved dan particulate Pb in water were between 0.435 – 3.984 μgL^{-1} , 0.246 – 3.748 μgL^{-1} dan 0.0007 – 0.339 μgL^{-1} respectively. Concentrations of Hg in water were between 0.013 – 0.739 μgL^{-1} .