

**KARBON AKTIF CANGKANG KARET TERAKTIVASI EKSTRAK
ETANOL DAUN KARIMUNTING (*Malastoma malabathricum L*)
SEBAGAI ADSORBEN ION LOGAM Pb (II)**

Abstrak

Logam Pb adalah salah satu logam berat non esensial yang dapat mencemari lingkungan perairan yang berasal dari proses industri. Metode adsorpsi digunakan sebagai alternatif untuk menurunkan kadar logam berat Pb diperairan. Karakteristik adsorben karbon cangkang karet (KCK) dan karbon aktif cangkang karet teraktivasi ekstrak daun karimunting (KACK) berdasarkan karakterisasi FT-IR dan SEM sangat penting dalam proses adsorpsi yang bertujuan untuk mengetahui pengaruh waktu kontak dan konsentrasi ion logam Pb terhadap kapasitas adsorpsi dan mengetahui model kinetika serta isoterm adsorpsi ion logam Pb. Hasil karakterisasi adsorben KCK dan KACK menggunakan FTIR dan SEM mengkonfirmasi bahwa tidak adanya penambahan gugus fungsi pada adsorben KACK dan terjadi perubahan morfologi permukaan yang lebih halus pada adsorben KACK. Waktu kontak adsorben KCK dan KACK diperoleh pada menit ke 10 dan 90 dengan kapasitas masing-masing sebesar 53,295 dan 53,523 mg/g serta

mengikuti model kinetika pseudo orde-2. Nilai kapasitas adsorpsi adsorben KCK dan KACK tertinggi diperoleh pada konsentrasi 110 ppm dengan masing- masing kapasitas penjerapan sebesar 106,74 dan 120,81 mg/g serta mengikuti model isotherm Langmuir.

***ACTIVATED RUBBER SHELL ACTIVATED CARBON
FROM ETHANOL EXTRACT OF KARIMUNTING
LEAVES (*Malastoma malabathricum L*) AS AN
ADSORBENT OF Pb (II) METAL IONS***

Abstract

Pb metal is one of the non-essential heavy metals that can pollute the aquatic environment from industrial processes. The adsorption method is used as an alternative to reduce the levels of Pb heavy metals in water. The characteristics of rubber shell carbon (KCK) and activated rubber shell carbon activated by karimunting leaf extract (KACK) adsorbents based on FT-IR and SEM characterization are very important in the adsorption process which aims to determine the effect of contact time and concentration of Pb metal ions on the adsorption capacity and to determine the kinetic model and isotherm of Pb metal ion adsorption. The results of the characterization of KCK and KACK adsorbents using FTIR and SEM confirmed that there was no addition of functional groups to the KACK adsorbent and there was a smoother change in surface morphology on the KACK adsorbent. The contact time of KCK and KACK adsorbents was obtained at 10 and

90 minutes with capacities of 53.295 and 53.523 mg/g respectively and followed the pseudo-2nd order kinetic model. The highest adsorption capacity values of the KCK and KACK adsorbents were obtained at a concentration of 110 ppm with adsorption capacities of 106.74 and 120.81 mg/g respectively and following the Langmuir isotherm model.