

PENURUNAN KADAR NITRAT PADA AIR KOLAM TAMBAK UDANG MENGGUNAKAN METODE ADSORPSI DENGAN ADSORBEN KARBON AKTIF

INTISARI

**Sherly Marcia Devana
16612009**

Telah dilakukan penelitian tentang penurunan kadar nitrat pada air kolam tambak udang dengan menggunakan adsorpsi karbon aktif. Adsorben yang digunakan ialah karbon aktif batu bara. Proses penurunan kadar nitrat ini dilakukan dengan sistem *flow* variasi perbedaan perlakuan, perbedaan berat, sistem sirkulasi, dan mengetahui tingkat keefektifan karbon aktif dalam. Karakterisasi adsorben karbon aktif menggunakan *X-ray Diffraction* (XRD) menghasilkan nilai 2θ 20,85. Selain itu dilakukan juga pengamatan adsorben karbon aktif pada saat sebelum dan sesudah proses adsorpsi pada air kolam air tambak udang menggunakan *Fourier Transform Infrared* (FTIR). Hasil yang diperoleh pada penelitian ini ialah adsorben karbon aktif berat 100 gram dengan perlakuan dicuci menggunakan akuades dapat menurunkan kadar nitrat paling tinggi yaitu mencapai 77,62%. Setelah melalui lima kali perlakuan sirkulasi adsorben karbon aktif mampu menurunkan kadar nitrat mencapai 90,19% dari konsentrasi awal. Efektifitas karbon aktif untuk menurunkan kadar nitrat semakin menurun jika dilakukan lebih dari tiga kali sirkulasi.

Kata kunci: Adsorpsi, Air kolam tambak, Karbon Aktif, Nitrat, XRD

THE DECREASING OF NITRATE LEVELS IN SHRIMP POND BY ADSORPTION METHOD USING OF ADSORBENT ACTIVATED CARBON

ABSTRACT

Sherly Marcia Devana

16612009

Research has been carried out on reducing nitrate levels in shrimp pond using activated carbon adsorption. The adsorbent used was coal activated carbon. The process of decreasing nitrate levels was conducted by a flow system with variations in treatment difference, weight difference, circulation system, and finding the effectiveness of activated carbon. The characterization of activated carbon adsorbents using X-ray Diffraction (XRD) produced a 2θ 20,85. Besides, an observation of activated carbon adsorbent was also completed before and after the adsorption process in shrimp pond using the Fourier Transform Infrared (FTIR). The results obtained in this study are that the adsorbent of 100 grams of activated carbon treated with washed water using distilled water can reduce the highest nitrate level reaching 77.61%. After going through five times, the circulating treatment of the activated carbon adsorbs can reduce nitrate levels reaching 90.19% from the initial concentration. The effectiveness of activated carbon that is used to reduce nitrate levels keeps decreasing if circulation was done more than three times.

Keywords: Adsorption, Activated Carbon, Nitrate, Pond, XRD