

ABSTRAK

VERIFIKASI METODE MOLIBDENUM BIRU DALAM PENENTUAN KADAR FOSFAT PADA AIR LIMBAH TAMBAK UDANG SEBAGAI UJI ADSORPSI ZEOLIT ALAM LAMPUNG

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Limbah tambak udang diantaranya mengandung fosfat (PO_4^{3-}) yang dalam konsentrasi tinggi akan membahayakan lingkungan perairan. Salah satu upaya untuk menurunkan kadar fosfat dalam sampel air limbah tambak udang adalah menggunakan metode adsorpsi dengan memanfaatkan daya serap zeolit. Kadar fosfat pada sampel air limbah tambak udang dapat ditentukan menggunakan metode Molibdenum Biru. Tujuan penelitian ini adalah melakukan verifikasi metode Molibdenum Biru dalam penentuan kadar fosfat pada air limbah tambak udang dengan parameter linieritas, presisi, akurasi, *limit of detection* (LoD), dan *limit of quantitation* (LoQ). Konsentrasi fosfat ditentukan pada rentang 0,1-2 mg/L dengan nilai koefisien korelasi (r) yang diperoleh sebesar 0,9952, dengan limit deteksi dan limit kuantitasi masing-masing sebesar 0,1169 mg/L dan 0,3899 mg/L, nilai presisi berdasarkan *repeability* sebesar 0,48%, dan nilai akurasi diperoleh dari perhitungan persentase *recovery*, diperoleh sebesar 109,85%. Hasil verifikasi metode molibdenum biru telah memenuhi batas keberterimaan berdasarkan acuan SNI (Standar Nasional Indonesia) dan AOAC (*Association of Analytical Communities*). Berdasarkan hasil pengujian diperoleh konsentrasi fosfat dalam sampel air limbah tambak udang sebesar 1,35 mg/L. Zeolit yang diberi perlakuan mampu menurunkan kadar fosfat sebesar 52,945%, sedangkan zeolit alam hanya mampu menurunkan kadar fosfat sebesar 38,29%.

Kata Kunci :Air limbah tambak udang, metode Molibdenum Biru, Zeolit

ABSTRACT

VERIFICATION OF THE BLUE MOLIBDENUM METHOD IN THE DETERMINATION OF PHOSPHATE CONTENT IN SHRIMP POND WASTE WATER AS THE ADSORPTION TEST OF NATURAL ZEOLITE IN LAMPUNG

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Shrimp pond waste contains phosphate (PO_4^{3-}) which in high concentrations will endanger the aquatic environment. One of the efforts to reduce phosphate levels in shrimp pond wastewater samples is to use the adsorption method by utilizing the absorption capacity of zeolite. Phosphate levels in shrimp pond wastewater samples can be determined using the Blue Molybdenum method. The purpose of this study was to verify the Blue Molybdenum method in determining phosphate levels in shrimp pond wastewater with parameters of linearity, precision, accuracy, limit of detection and limit of quantitation. Phosphate concentration was determined in the range of 0.1-2 mg/L with a correlation coefficient value (r) obtained of 0.9952, with detection limits and quantitation limits of 0.1169 mg/L and 0.3899 mg/L respectively, the precision value based on repeatability is 0.48%, and the accuracy value obtained from calculating the percentage of recoveries is 109.85%. The verification results of the blue molybdenum method have met the acceptance limits based on the SNI (Indonesian National Standard) and AOAC (Association of Analytical Communities) references. Based on the test results, the concentration of phosphate in the shrimp pond wastewater samples was 1.35 mg/L. The treated zeolite was able to reduce phosphate levels by 52.945% while natural zeolite was only able to reduce phosphate levels by 38.29%.

Keywords : Shrimp pond wastewater, Blue Molybdenum method, Zeolite