Pangestika, A. K. R., 2014, Pengembangan Metode Analisis Nitrofuran dalam Udang Berbasis Reaksi Diazotasi dengan Agen Pengkopling *N-(1-Naphthyl)ethylenediamine dihydrochloride* (NEDA) secara Spektrofotometri UV-Vis. Skripsi ini di bawah bimbingan Dr. rer. nat. Ganden Supriyanto, Dipl, EST, M.Sc dan Ahmadi Jaya Permana, S.Si, M.Si. Departemen Kimia, Fakultas Sains dan Teknologi, Universitas Airlangga, Surabaya.

ABSTRAK

Sebuah metode baru telah dikembangkan untuk penentuan nitrofuran dalam udang berdasarkan reaksi diazotasi pada suhu dingin secara spektrofotometri UV-Vis. Nitrofuran direduksi dengan serbuk seng (Zn) untuk merubah gugus nitro menjadi amina. Reaksi diazotasi dilakukan dengan mereaksikan nitrofuran tereduksi, $NaNO_2$, HCl dan *N-(1-Naphthyl)ethy lenediamine dihydrochloride* (NEDA) sebagai agen pengkopling. Senyawa azo berwarna ungu kemerahan terbentuk dan absorbansinya diukur dengan spektrofotometer UV-Vis pada panjang gelombang 554 nm. Parameter validasi yang ditentukan yaitu linearitas, sensitivitas, akurasi, presisi, limit deteksi (LD) dan limit kuantifikasi (LQ). Metode ini memberikaan korelasi yang baik dengan koefisien korelasi (R^2) sebesar 0,990 untuk rentang konsentrasi 0,2. 10^{-5}-1.10^{-5} M. Limit deteksi dan limit kuantifikasi masing-masing sebesar $1,09.10^{-6}$ M dan $3,65.10^{-6}$ M. Akurasi dan presisi metode masing-masing sebesar 93,58% dan 2,31%. Nitrofuran yang ditambahkan (*spiking*) ke sampel udang *Litopenaeus vannamei* memberikan *recovery* rata-rata sebesar 84,35 %.

Kata kunci : Nitrofuran, udang, diazotasi, spektrofotometri, NEDA.

Pangestika, A. K. R., 2014, Method Development of Nitrofuran Analysis in the Shrimp Based on the Diazotization with *N-(1-Naphthyl)ethylenediamine dihydrochloride* (NEDA) as Coupling Agent by Spectrophotometry UV-Vis. This thesis under the guidance of Dr. rer. nat. Ganden Supriyanto, Dipl, EST, M.Sc and Ahmadi Jaya Permana, S.Si, M.Si. Departement of Chemistry, Faculty of Science and Technology, Airlangga University, Surabaya.

ABSTRACT

A new method for determination of nitrofuran in the shrimp based on the diazotization reaction at cold temperatures by spectrophotometry UV-Vis has been developed. Nitrofuran was reduced by zinc powder to convert nitro group to amine group. Diazotization reacton was carried out in present of $NaNO_2$, HCl and *N-(1-Naphthyl)ethylenediamine dihydrochloride* (NEDA) as coupling agent. Reddish violet azo compounds were formed and the absorbance was measured by spectrophotometer UV-Vis at a wavelength of 554 nm. The method was validated by evaluation of analytical parameters including linearity, sensitivity, accuracy, precision, limit of detection (LOD) and limit of quantification (LOQ). This method showed good correlation, the correlation coefficient (R^2) was 0,990 for $0{,}2.10^{-5}$-1.10^{-5} M concentration range. The limit of detection and limit of quantification were $1{,}09.10^{-6}$ M and $3{,}65.10^{-6}$ M respectively. The accuracy and precision of method were 93,58% and 2,31% respectively. The nitrofuran which was spiked to *Litopenaeus vannamei* shrimp provide recovery 84,35 %.

Keyword : Nitrofuran, shrimp, diazotization, spectrophotometry, NEDA.