Optimasi pereaksi Schryver dan penerapannya pada analisis Formaldehid dalam usus dan hati ayam spektrofotometri

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Abstrak

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Pereaksi Schryver merupakan salah satu pereaksi yang biasa digunakan untuk analisis kualitatif formaldehid. Pereaksi ini banyak digunakan karena memiliki sensitivitas dan selektivitas yang baik terhadap formaldehid. Penelitian ini bertujuan untuk melakukan optimasi pereaksi Schryver agar penggunaannya optimal pada analisis kualitatif dan kuantitatif formaldehid. Optimasi dilakukan dengan cara membuat variasi konsentrasi dari masing-masing komponen secara bertahap. Komposisi yang optimum dipilih berdasarkan intensitas dan stabilitas serapan yang diperoleh. Kemudian komposisi ini digunakan untuk mengidentifikasi dan menentukan kadar formaldehid secara spektrofotometri pada sampel usus dan hati ayam yang dijual di Pasar Minggu dan Pasar Kramat Jati, Jakarta, Indonesia. Hasil validasi metode menunjukkan batas deteksi 0,0464 mg/L dan batas kuantitasi 0,1546 mg/L. Uji presisi dan akurasi metode menunjukkan hasil yang baik dengan koefisien variasi 0,538%, persentase perolehan kembali formaldehid dalam sampel usus ayam berkisar antara 98,64 ? 100,08% dan dalam sampel hati ayam 99,86 ? 104,34%. Identifikasi formaldehid terhadap 6 sampel usus ayam didapatkan hanya 1 sampel yang menunjukkan hasil yang positif dengan kadar 99,8481 μg/g. Sedangkan identifikasi formaldehid dalam 6 sampel hati ayam menunjukkan hasil yang negatif.
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ABSTRACT
Schryver?s Reagent is one of many reagent that often used for formaldehyde qualitative analysis. For most purposes Schryver?s method using phenylhydrazine hydrochloride and potassium ferricyanide is the method of choice because this reagent have a good sensitivity and selectivity against formaldehyde. In this research, the Schryver?s reagent will be optimized and so it can be used optimally in qualitative and quantitative analysis of formaldehyde. Optimization was done by varying the concentration of each component step by step. The optimum composition was selected based on the absorption intensity and stability obtained. Then the optimized composition will be used to identify and determine the value of formaldehyde using spectrophotometry in chicken intestine and liver samples that sold in Pasar Minggu and Pasar Kramat Jati, Jakarta, Indonesia. The validation method showed that the detection limit was 0.0464 mg/L and the quantification limit 0.1546 mg/L. Precision and accuracy test showed a good result that variation coeficient 0.538%, recovery test of

formaldehyde in chicken intestine sample is about between 98.64% and 100.08%, and about between 99.86% and 104.34% in chicken liver. The formaldehyde identification in chicken intestine sample showed from six samples have been tested, only one sample that gave a positive result which contain 99.8481 μg/g. Whereas the formaldehyde identification in chicken liver sample showed a negative result., Schryver?s Reagent is one of many reagent that often used for formaldehyde qualitative analysis. For most purposes Schryver?s method using phenylhydrazine hydrochloride and potassium ferricyanide is the method of choice because this reagent have a good sensitivity and selectivity against formaldehyde. In this research, the Schryver?s reagent will be optimized and so it can be used optimally in qualitative and quantitative analysis of formaldehyde. Optimization was done by varying the concentration of each component step by step. The optimum composition was selected based on the absorption intensity and stability obtained. Then the optimized composition will be used to identify and determine the value of formaldehyde using spectrophotometry in chicken intestine and liver samples that sold in Pasar Minggu and Pasar Kramat Jati, Jakarta, Indonesia. The validation method showed that the detection limit was 0.0464 mg/L and the quantification limit 0.1546 mg/L. Precision and accuracy test showed a good result that variation coeficient 0.538%, recovery test of formaldehyde in chicken intestine sample is about between 98.64% and 100.08%, and about between 99.86% and 104.34% in chicken liver. The formaldehyde identification in chicken intestine sample showed from six samples have been tested, only one sample that gave a positive result which contain 99.8481 μg/g. Whereas the formaldehyde identification in chicken liver sample showed a negative result.]