

ABSTRACT

VALIDATION OF UV-Vis SPECTROPHOTOMETRY METHOD FOR DETERMINATION OF FORMALIN IN RICE

Validation is a basic requirement to ensure quality and reliability of the results for all analytical applications. Because of an issue in internet about formaldehyde in rice. Validation of UV-Vis spectrophotometry method for determination of formalin in rice is needed to get a method which can applied in rice. So that, it can be applied in routine analysis and quality control. Spectrophotometry method with chromotropic acid as a reagent has been used for determination of formaldehyde in this research. Before doing validation, optimization of method to find the optimum condition was carried out firstly. The optimum condition of Spectrophotometry method was performed in the wavelength of 567 nm. It was needed 1.2 ml chromotropic acid 0.5 % and 6 ml concentrated sulfuric acid to yield the complete reaction then the absorbance was observed after 15 minutes. In that condition, the equation of regression was $y = 0.5160 x + 0.0433$, $r = 0.9998$; $p = 0.002$ ($p < 0.01$) and $V_{xo} = 1.44$ % ($V_{xo} \leq 5$ %). The limits of detection and quantitation were found to be 0.0063 ppm and 0.0192 ppm respectively, while the accuracy gave mean recovery of 79.78 %. and the precision gave variation coefficient of 1.54 %. The determination of formaldehyde in rice was carried out in three samples which were taken from a traditional market in Surabaya. The result showed that one of these three samples was positive for formaldehyde and the concentration was 9.2824 $\mu\text{g/g}$ in wet sample. From this result, it can be concluded that this method is appropriate for validation requirements.

Keyword : Validation, Spectrophotometry, chromotropic acid, formaldehyde, rice