ABSTRACT

METHOD VALIDATION OF DETERMINATION OF VITAMIN B1 AND B6 IN MIXTURES BY SPECTROPHOTOMETRY UV – VIS WITH THREE-WAVELENGHT AND DERIVATIF TECHNIQUE

Elfi Zahra Nidzamatu Millah

The three-wavelenght and derivative techniques of UV spectrophotometry were used for quantitative analysis of a mixture of vitamin B_1 and B_6 simultaneously. The two tecniques were compared based on the validation parameters included selectivity, linierity, accuracy, and precision. The objective of this study was to obtain a simple and rapid method for determining vitamin B_1 and B_6 in injection dosage form. The three-wavelenght technique used 255nm, 260nm, and 265nm and 319nm, 324nm, and 329nm as optimum λ for determination B_1 and B_6 respectively. The result of this study showed a high linierity degree ($R^2 \geq 0,995$) for both vitamin with range of concentration for linierity test was 4 – 24 ppm. The result of accuracy and precision test for vitamin B_1 were (99,77 ± 2,93)% . Statistic test ($\alpha = 0,05$) those value indicated a high accuracy and a low precision degrees. Recovery vitamin B_6 was (96,50 ± 2,04)% those value indicated a low accuracyand precision degrees. The derivative technique showed selective wavelenght at 292nm for vitamin B_1 and 340nm for vitamin B_6. The result showed a high linierity degree ($R^2 \geq 0,995$) for both vitamin in range of concentration at 4 – 24 ppm. The result of accuracy and precision test for vitamin B_1 were (102,19 ± 1,30)% those value indicated a low accuracy and a high precision degrees. Recovery vitamin B_6 was (93,05 ± 3,11)% those value indicated a low accuracy and precision degrees. The conclusion of this study was the two tecniques could not be used for quantitative analisys of a mixture vitamin B_1 and B_6 simultaneously.

Keywords: UV Spectrophotometry, method validation, vitamin B_1, vitamin B_6, three-wavelength, derivative