

INTISARI

Telah dilakukan penetapan kadar kafein dalam campuran parasetamol, salisilamida dan kafein secara spektrofotometri ultraviolet dengan aplikasi metode *zero crossing* dengan tujuan untuk mengetahui akurasi dan presisi metode *zero crossing* yang digunakan. Metode ini didasarkan pada spektrum kafein, parasetamol, dan salisilamida bertumpang tindih pada daerah ultraviolet dan ketiganya terlarut dalam pelarut yang sama yaitu etanol. Selain itu, rentang kadar kafein dengan parasetamol dan salisilamida terlalu besar. Oleh karena itu kadarnya harus ditetapkan secara simultan.

Penelitian ini merupakan penelitian non eksperimental deskriptif. penelitian ini dilakukan dengan membuat spektra serapan normal, spektra derivat pertama, spektra derivat kedua, maupun spektra derivat ketiga. Kemudian ditentukan panjang gelombang *zero crossing* parasetamol dan salisilamida. Panjang gelombang *zero crossing* parasetamol dan salisilamida diperoleh pada spektra derivatif ketiga yaitu panjang gelombang 271,3 nm.

Persamaan kurva baku dibuat dalam range konsentrasi 0,75 mg% b/v - 3,25 mg% b/v. Akurasi dinyatakan dengan % *recovery*, sedangkan presisi dinyatakan dengan *Coefficient of Variation* (CV). Hasil menunjukkan *recovery* kafein yang diperoleh adalah 95,153%-106,625%, *Coefficient of Variation* (CV) kadar terukur adalah 1,895%. Dapat disimpulkan bahwa penetapan kadar kafein dalam campuran parasetamol, salisilamida dan kafein secara spektrofotometri derivatif dengan aplikasi metode *zero crossing* memiliki akurasi dan presisi yang baik, bahkan memiliki rentang, linieritas dan spesifikasi yang baik pula. Dengan demikian memenuhi validasi metode kategori pertama.

Kata kunci : kafein, spektrofotometri derivatif, *zero crossing*.

ABSTRACT

This research was to determine the amount of caffeine in the mixture of paracetamol, salicylamide and caffeine using derivative spectrophotometry with zero crossing method application. This research was intended to count the accurateness and precision of the method. This method was based on the spectra of caffeine, paracetamol, and salicylamide that overlaped each other on their ultraviolet area, while they were being dissolved under the same solvent i.e. ethanol. Besides, the range of amount of caffeine is too much that the amount of paracetamol and salicylamide, should be determined simultaneously.

This research was a non-experimental descriptive research which was conducted by setting the normal absorption spectrum, the first, the second, and the third derivative spectrum. Then it determined the zero crossing wave of the length of paracetamol and salicylamide. The zero crossing wave of the length of caffeine on the third derivative spectrum has 271.3 nm.

The standard curve equation was made under a concentration range between 0.75 mg% b/v - 3.25 mg% b/v. The accurateness was stated with % recovery, while precision was expressed by Coefficient of Variation (CV). The result revealed that caffeine recovery was between 95.153% - 106.625% and the Coefficient of Variation (CV) was 1.895. Therefore, it suggested that determining the amount of caffeine in the mixture of paracetamol, salicylamide, and caffeine using derivative spectrophotometry by applying zero crossing method was proved to have a good accurateness and precision, it has good range, linearity and specificity.

Key word : caffeine, derivative spectrophotometry, zero crossing