ABSTRACT

VALIDATION OF UV-VIS SPECTROPHOTOMETRIC METHOD FOR DETERMINATION OF BORAX IN MEATBALL

Borax, in illicit additive substance, was added on certain food product as a preservative and rubbery. Therefore, the determination of borax in food product such as meatball is very important in view of meatball is a food product often consumed by the general public. UV-Vis Spectrophotometric method with curcumin 0.125% as a reagent and glacial acetic acid-sulphuric acid has been used for determination of borax in this research. Curcumin reagent select because sensitivity of the method and the reproducibility of the results obtained depend on the quality of the curcumin reagent, and on rigorous observance of the reaction conditions (temperature, time, reagent quantities). Used glacial acetic acid-sulphuric acid because in acid media, curcumin and boron form a violetred 2:1 complex called rosocyanin. The optimum result were obtained when 1.0 ml solution of 0.125% curcumin and 1.0 ml condition concentrated sulphuric acid were added and the absorbance was measured after 70 minutes at 547 nm. The result shows linear regression was \( y = 1.3127x - 0.0994 \), \( r = 0.9690 \) > \( r \) table (\( n = 5 \)) is 0.878 and \( p = 0.007 \) (p < 0.01) and \( Vx0 \) is 15.53%. The detection limit were found to be 9.7.10^{-4} ppm and quantitation limit is 2.94. 10^{-3} ppm. Respectively, the recovery percentage was 47.56% and the coefficient variation was 3.92%. The determination of borax in three meatball sample which were taken from a area Surabaya showed that sample is positive of borax and the concentration was 0.0205 ; 0.0151 ; 0.0210 (% w/w).

Keyword : borax, meatball, validation, spectrophotometric UV-Vis, rosocyanin