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Determination of Ascorbic Acid in Vegetables by Derivative Spectrophotometry

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Abstract: Determination of ascorbic acid (AA) in garlic, green pepper and chestnut was performed by derivative spectrophotometry without using any pre-separation or background correction techniques. The method is based on the measurement of the distances between two extremum values (peak-to-peak amplitudes) in second and third order derivative spectra of the extracts. Ten percent trichloroacetic acid was found to be the most suitable extraction solution. In the second order derivative spectrum the extrema of 253.2 and 259 nm for garlic, and in the third order derivative spectrum, the extrama of 256.4 and 261.6 nm for green pepper and chestrut samples were used for the determination of AA. Calibration graphs were linear over the concentration range 2.0--10.0 μ g ml^{-1}. The results obtained by this method were compared statistically with those obtained by official methods. Relative standard deviations of vegetables for AA varied from 0.89 to 2.99% (n = 5) depending on the method used. The recovery of AA in the vegetables was 91.66--97.8% by the standard addition method.

Key Words: Ascorbic acid, Vegetables, Derivative spectrophotometry

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