Spectrophotometric Detection for Flow Injection Analysis of Tertiary Alkylamines in Terms of the Intermolecular Charge-Transfer Interaction with Iodine.

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We have developed a new spectrophotometric detection method for flow injection analysis (FIA) in terms of intermolecular charge-transfer interaction with iodine, and the present technique has been examined by the determination of tertiary alkylamines as a model compound possessing no good chromophore and being extremely difficult to be derivatized to the spectroscopically active species. The FIA response was very good for all the samples and the peak height was linearly dependent on the sample concentration. The detection limit was in sub pmol level. The present method appears to be very promising as a postcolumn detector of HPLC analysis.

New Description of the Substituent Effect on Electronic Spectra by Means of Substituent Constants. Part VII. Electronic Spectra of Substituted Benzenes.

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The substituent effect on the first and second singlet $\pi-\pi^*$ bands of substituted benzenes is discussed on the basis of the general equations derived theoretically to describe the substituent effect by means of substituent constants. The first band of substituted benzenes is well explained by the equation, but the application to the second band was not so good. This is due to the fact that the contribution from intramolecular charge-transfer configurations to the second band is quite dependent on substituents. A theoretical study of the molecular orbital with regard to these results is reported, and the limit of the application of our equation is discussed.

Analysis of Myoglobin by Microcolumn Chromatoforcusing with Aid of Size Exclusion Chromatography and Photodiode Array Detection.

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Myoglobin was separated by microcolumn chromatofocusing (CF) and size exclusion chromatography (SEC) to obtain the data for isoelectric point (pI) and molecular weight (M.W.), respectively. Many small peaks besides the main myoglobin peak were observed, even when SEC gave only one peak. The absorption spectra for the all peaks in CF were observed by using the photodiode array detecter, and all the spectra were identical with each other. The chromatogram drawn by iron contents determind by atomic absorption spectrometry was also same with that obtained by UV detection. From these results, it was confirmed that many peaks could be assigned to isoproteins of myoglobin, not impurities of other proteins or decomposed fragments of myoglobin.