〔J. Chromatogr., **571**, 324-330 (1991) [Lab. of Pharm. Analytical Chemistry]

Determination of Glyphosate (GS) and Its Metabolite, (Aminomethyl)-phosphonic Acid (AMPA), in Serum Using Capillary Electrophoresis.

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Capillary electrophoresis has been applied to separate and quantitate glyphosate and its major metabolite, (aminomethyl)phosophonic acid (AMPA) in serum. The two compounds, after derivatization with *p*-toluenesulfonyl chloride, were clearly separated with 0.1 M boric acid-NaOH buffer (pH 9.6) containing 10 % methanol. The separation was completed within 15 min at an applied potential of 30 kV. The detection limit of these derivatives was 0.1 μg ml^{-1} in spiked sera, and the recoveries of GS and AMPA were 87.9-88.8% and 78.4-86.9%, respectively. The reproducibility and the effect of pH change on the electropherograms were especially examined.

〔Nippon Kagaku Kaishi, **1991**, 101-109〕 [Lab. of Pharm. Analytical Chemistry]

New Description of the Substituent Effect on Electronic Spectra by Means of Substituent Constants.

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As an extension of the mutual correlation between the nonaqueous oxidation-reduction potentials and the HOMO-LUMO type singlet or triplet band energy we have derived the equations to describe the substituent effect on electronic spectra by means of Swain's filed and resonance substituent constants, and of Yukawa-Tsuno's parameters, focusing our attention on the large difference of the substituent effect on the ground and excited sates. These equations well described the substituent effect on π-π^* and n-π^* bands in conjugated and aliphatic systems, intermolecular charge-transfer (CT) bands of EDA complexes, and intramolecular CT bands. A molecular orbital examination of these results was presented.

〔Anal. Sci., **7**, 963-965 (1991)〕 [Lab. of Pharm. Analytical Chemistry]

High-Performance Liquid Chromatographic Determination of Urinary Malondialdehyde as *p*-Nitrophenylhydrazine Derivative.

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A high-performance liquid chromatographic method is described for the determination of malondialdehyde (MDA) in urine as a *p*-nitrophenylhydrazine (NPH) derivative. In order to release MDA from the bound form of MDA-biomolecule complexes, urine samples were pretreated with alkaline solution. The HPLC peak corresponding to MDA in a urine sample was confirmed to be derived from real MDA by its mass spectrum. Urine samples of patients with various diseases were subjected to the determination of MDA contents, free and bound, and the correlation between urinary MDA contents and diseases has been discussed for the first time.