



3RD INTERNATIONAL SYMPOSIUM
ON DRUG ANALYSIS



ABSTRACTS



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SIMULTANEOUS ADSORPTIVE STRIPPING VOLTAMMETRIC ASSESSMENT OF SOME PTERINES IN HUMAN URINE.

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Pterins (2-amino-4-hydroxy-pteridines) constitute an important group of molecules of biological significance. Among them, Folic acid has long been recognized as part of vitamin B complex, and Biopterin and Neopterin urine concentration levels are used in the diagnosis of certain malignancies and tumors (1).

The adsorptive stripping voltammetric behaviour of these substances in the presence of each other has already been described elsewhere (2), and their determination in human urine, after a simple separation step, is reported in the present communication.

Biopterin and Neopterin possess a very like voltammetric behaviour what enables their joint determination. Since their reduction potential is very close to that of Folic acid, a previous separation of the urine sample into two fractions is necessary, what can be achieved by using a disposable C₁₈ cartridge as follows:

Dilute 0.5 mL of urine to 10 mL with a 0.1 M HAC-NaAc buffer solution of pH 5.0. Pass it through a C₁₈ cartridge (Sep-pak, Waters) previously activated by passing successively 20 mL of water, 5 mL of MeOH and 10 mL of the buffer solution.

The filtrate, together with two 10 mL portions of the buffer solution passed afterwards through the cartridge, contains the Biopterin and Neopterin, what is directly collected in the cell and assayed for the content of Biopterin and Neopterin.

The retained materials are eluted with 2 mL of MeOH and evaporated to dryness in a hot bath under an argon stream. The dry extract is reconstituted in 20 mL of the same buffer by mechanically shaking for 1 min. and is assayed for the Folic acid content.

The voltammograms are recorded in accordance with the following instrumental settings: superimposed alternating current amplitude 20 mV; frequency 75 Hz; scan rate 10 mV / s ; sampling current time 0.4 s; quantitation is accomplished by the standard addition method.

8 aliquots of a pool consisting in urine from at least 15 healthy patients have been analysed. The average concentration of Folic acid was 836 ppb (r.s.d. = 8.17%) and the together concentration of Biopterin and Neopterin was 704 ppb (r.s.d. = 6.62%).

1. T. Fukushima and T. Shiota, J. Biol. Chem., 247, 4549 (1972)

2. P. Tunon, J.M. Fernandez and A. Costa. ElectroFinnAnalysis.

Turku-Abo, June 1988.



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To whom it may concern,

I declare that Dr. J.M. Fernandez Alvarez presented a poster entitled:

"Simultaneous adsorptive stripping voltammetric assessment of some pterines in human urine"

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The Symposium Secretary,

Dr. Pharm. G. Laekeman