

**SIMULTANEOUS VOLTAMMETRIC  
DETERMINATION OF ALUMINUM AND IRON IN  
HIGH SALT CONTENT MATRICES:  
APPLICATION TO DIALYSIS FLUIDS.**

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In ureamic patients on dialysis treatment, there is ample evidence to implicate aluminum as the causative agent of a progressive fatal syndrome named dialysis dementia (1) and of a modified form of renal osteodystrophy (2), mainly of osteomalacic type.

Besides, patients with renal failure have a reduced capacity to excrete Al and Fe and any excess that enters the body tends to accumulate in blood and other tissues (3). For example, the most significant sources of Al and Fe intoxication in dialysis patients are either the Al and Fe contained in antacids which are routinely administered to patients or the dialysis fluids contamination.

For this reason a new method for simultaneously determining Al and Fe by Differential Pulse Adsorption Voltammetry (DPAV) has been carried out.

The voltammetric measurements were performed using, as working electrode, a stationary mercury electrode, and a platinum electrode and an  $\text{Ag}|\text{AgCl}|\text{KCl}_{(\text{sat.})}$  electrode as auxiliary and reference electrodes, respectively.

As complexing agents, Solochrome Violet RS, Platine Chrome Black 6BN, Chromazurol S and Eriochrome Black T were employed.

For both elements, accuracy, expressed as relative recovery R%, was very satisfactory being in the range 94-106%, the precision, expressed as relative standard deviation  $s_r\%$ , was lower than 5%, while the limits of detection were around  $10^{-9}$  mol/L.

References

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- 3) S. Sideman, D. Manor, Nephron 31 (1980), 1.