ASSESSMENT OF LITHIUM IN TRANSYLVANIAN MINERAL WATERS USING THE PLATINUM-WIRE LOOP FAES TECHNIQUE

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Abstract

The survey of the lithium content of several spring and bottled mineral waters originating from Transylvania (Romania) has been carried out by atomization of 3 μL sample from a Pt-wire loop in the methane-air (M-A) flame. The quantification conditions were optimized; they are: atomic emission at λ = 670.8 nm, the height of 5 mm over the burner head, gas flow rates of 300 L h⁻¹ air and 34 L h⁻¹ methane. The effect of Na, K, Mg, Ca, NO₃⁻, PO₄³⁻, SO₄²⁻ and H₃BO₃ on the emission of lithium was studied, too. The limit of quantification (6σ) obtained is of 0.35 ± 0.14 μg L⁻¹ or 1.05 ± 0.42 pg, respectively (P = 0.05). Boric acid was found to be an efficient matrix modifier. The lithium content of the samples was determined with continuous nebulization and by atomization from the Pt-wire. Both the standard calibration curve and the standard addition method were used. The results of the two procedures correspond within the determination errors.

Key words: FAES, lithium, mineral water, platinum-wire

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