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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 $\lambda = 670.8 \text{ nm}$, 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, NO_3^- , PO_4^{3-} , SO_4^{2-} and H_3BO_3 on the emission of lithium was studied, too. The limit of quantification (6σ) obtained is of $0.35 \pm 0.14 \mu\text{g L}^{-1}$ or $1.05 \pm 0.42 \text{ pg}$, 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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