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AUTOMATIC STANDARD ADDITION METHOD FOR POTENTIOMETRIC FLUORIDE DETERMINATION AT LOW LEVELS IN FOOD PRODUCTS

Andrea C. Galvis-SÁNCHEZ, João Rodrigo Santos, António O.S.S. Rangel
CBQF - Centro de Biotecnologia e Química Fina – Laboratório Associado, Escola Superior de Biotecnologia, Universidade Católica Portuguesa/Porto, Rua Dr. António Bernardino Almeida, 4200-072 Porto, Portugal

Standard addition calibration method (SAM) is a well-accepted analytical approach, although its application for routine laboratory work is laborious and time consuming. The automation of the SAM by the use of flow analysis strategies allowed this analytical approach to be more easily performed.

Ion selective electrodes (ISE), due to their recognized analytical performance, enabled the development of analytical methodologies generally based on a simple calibration curve approach. Still, in some particular cases, SAM is required to increase the reliability of the analytical results [1, 2]; furthermore, it can be used as an analytical strategy to perform determinations when the analyte concentration is close to the detection limit of the detector.

The present work explores the implementation of an automatic flow system to perform SAM for the determination of fluoride at low concentration levels in different food samples by ISE potentiometric detection.

The quantification of the daily ingestion of fluoride through food products is necessary because an elevated exposure to fluoride can be detrimental to human's health. The reference methodologies reported for fluoride determination in fluoride food samples (i.e. table salt) [3] do not fulfill the requirement for the low ion levels usually present in similar or other types of foods; therefore, it is expected that the analytical approach herein presented may overcome this difficulty.

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