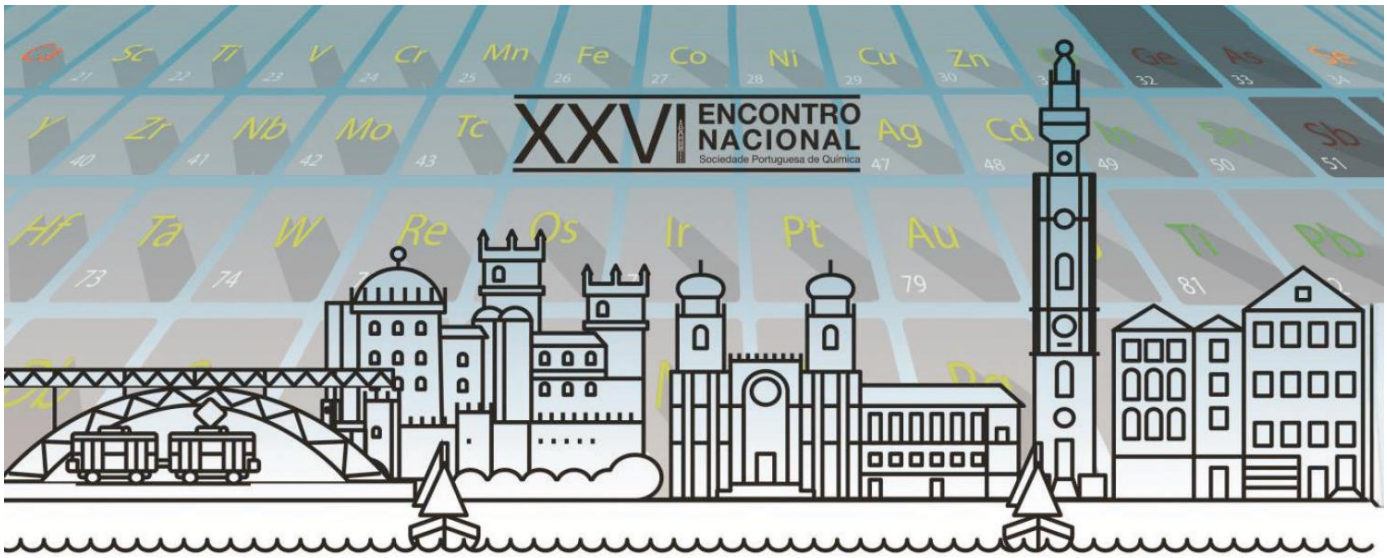

150 ANOS PARA 118 ELEMENTOS
A TABELA PERIÓDICA

XXVI ENCONTRO NACIONAL

DA SOCIEDADE PORTUGUESA DE QUÍMICA

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CPH34

Health

Spectrofluorimetric determination of iodine in urine samples with on-line UV photooxidation using a miniaturized analyzer chip in a multi-syringe flow system

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Iodine is a nutrient and a component of the thyroid hormones essential for human growth and development [1]. The determination of the iodine status is based on the concentration of iodine excreted in urine [2]. Several detection systems are used to quantify iodine in urine, namely spectrophotometric, potentiometric, and ICP-MS. Most of the spectrophotometric methods for the determination of urinary iodine are based on the Sandell-Kolthoff reaction [3]. The method proposed in this study consists in a fluorometric detection of the catalytic effect of iodide on the redox reaction between Ce(IV) and As(III), using the Sandell-Kolthoff reaction, in a miniaturized chip-based flow manifold. This method was based on a previous work using an advanced three-dimensional chip device and direct spectrofluorimetric quantification of iodide in sea water [4]. The proposed method was adjusted for the determination of iodine in urine samples; this implied to eliminate interferences (namely from thiocyanate) and release iodine from organo-iodine compounds. To accomplish this objective, an on-line oxidation process aided by UV radiation was implemented in the developed system. The developed method is simpler, faster and more sensitive than the classic approach of the Sandell-Kolthoff reaction [3].

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