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POR SU PARTICIPACIÓN CON EL CARTEL:

***“GREEN ANALYTICAL AUTOMATIC METHOD FOR
IRON SPECIATION IN BATHING WATER SAMPLES”***

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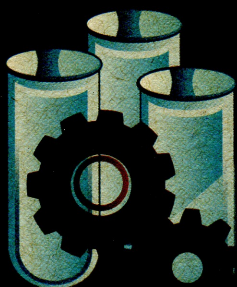
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Green analytical automatic method for iron speciation in bathing water samples

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The speciation of iron(II) and iron(III) in dynamic water systems usually implies the determination with highly toxic reagents. For this fact, a green analytical method based on sequential injection lab-on-valve (SI-LOV) solid-phase spectrophotometry for iron speciation in bathing water samples was developed. The spectrophotometric detection was based on the colorimetric reaction between iron(III) and the non-toxic reagent 3-hydroxy-4-pyridinone (3,4-HPO) chelator, which are well known, mainly reason of their biomedical applications; they are particularly attractive for pharmaceutical purposes since their structure allows tailoring of their hydrophilic/lipophilic balance without significantly its chelating properties. To achieve a suitable limit of detection, a pre-concentration step was included using the Nitrilotriacetic Acid Superflow (NTA) resin. The NTA resin was placed in the flow cell for assembling the preconcentration column where iron was retained prior to the reaction with 3,4-HPO. Thus, the change of absorbance was monitored at 460 nm, corresponding to the complex formation. With this approach, both the low levels of iron in natural waters, and minimization of the high salinity interference in coastal water samples were attained. The developed method enabled a limit of detection of $3 \mu\text{g Fe L}^{-1}$ with a linear range between $20 - 100 \mu\text{g Fe L}^{-1}$, with low sample consumption and effluent production, $400 \mu\text{L}$ and 2.15 mL respectively. The proposed method was effectively applied to the speciation of iron in different bathing waters, coastal and inland.

Keywords: Iron speciation, SI-LOV, 3-hydroxy-4-pyridinone, green method, bathing water samples

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