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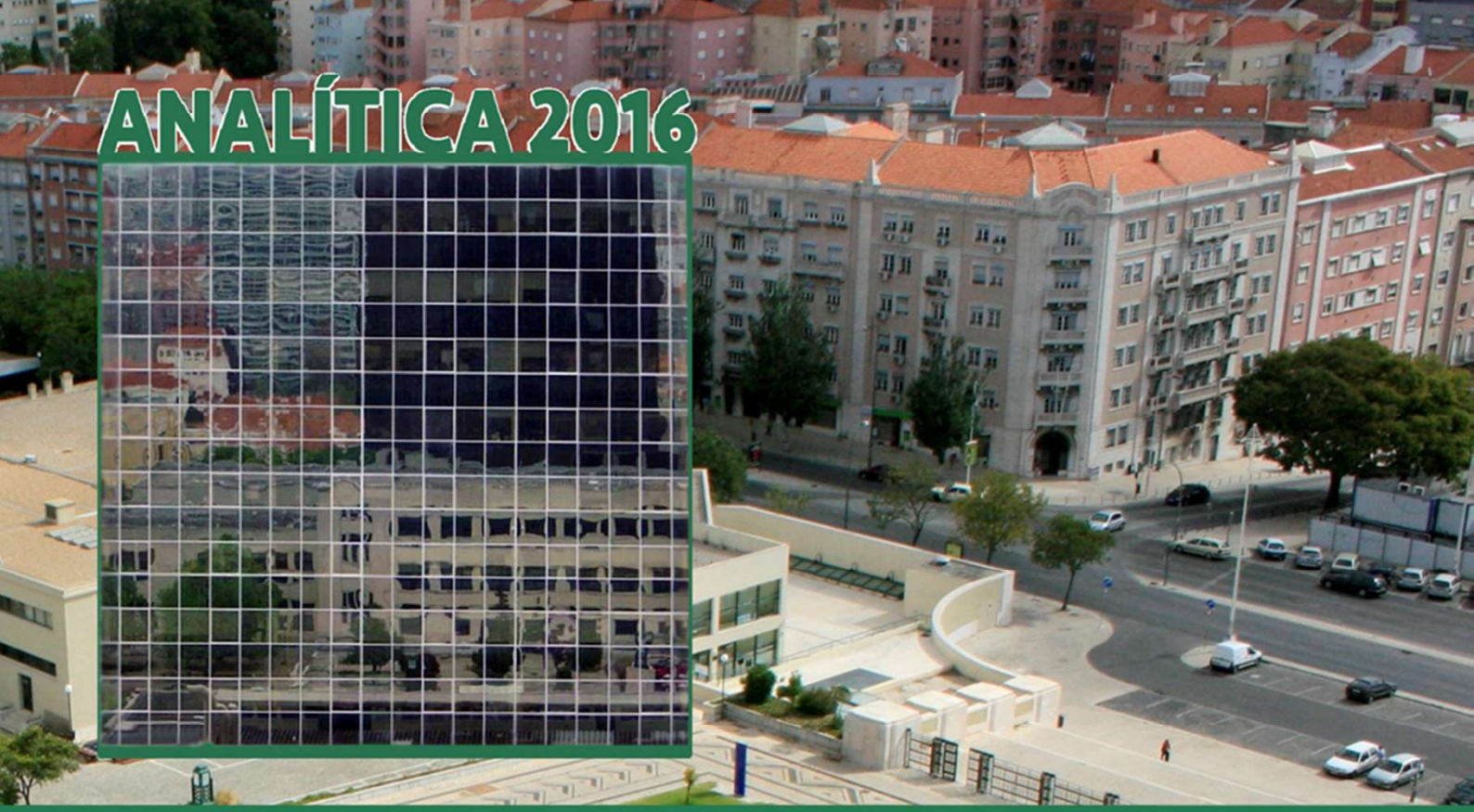

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EXPLORING NEWLY SYNTHESIZED IRON CHELATORS FOR DEVELOPMENT OF *IN SITU* DEVICES

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The environmental monitoring of water samples requires real-time determinations. In order to prevent and anticipate a pollution problem, as well as achieve an appropriate real-time response, frequent analysis is essential. To cope with this requirement, low cost devices, preferably for *in situ* determination, are extremely useful as effective monitoring tools.

In this context, two analytical approaches were explored for the determination of iron(III) in natural waters: the development of microfluidic paper-based devices and ion selective electrodes. Furthermore, to attain a more sustainable chemistry, low toxicity reagents were targeted as alternative reagents.

The aim of our work follows a recently finished project in which especially designed iron chelators were explored in a wet chemistry solution approach [1-3]. The ligands of the 3-hydroxy-4-pyridinone (3,4-HPO) class are synthetically versatile, bear two oxygen coordinating atoms and consequently show a high capacity to trap iron(III) in the form of FeL_3 complexes and a significantly lower affinity for iron(II), a key feature to attain iron speciation. Rhodamine-based ligands were also used for the spectrophotometric and fluorimetric determination of iron (III). The versatility of the used ligands encouraged its further exploring through other approaches.

Microfluidic paper-based devices (µ-PADs) have been gaining an increasing role in environmental monitoring as they are portable, disposable, easy to use, rapid and low cost.

In this communication, the potential of these approaches for in situ applications in environmental monitoring will be discussed.

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