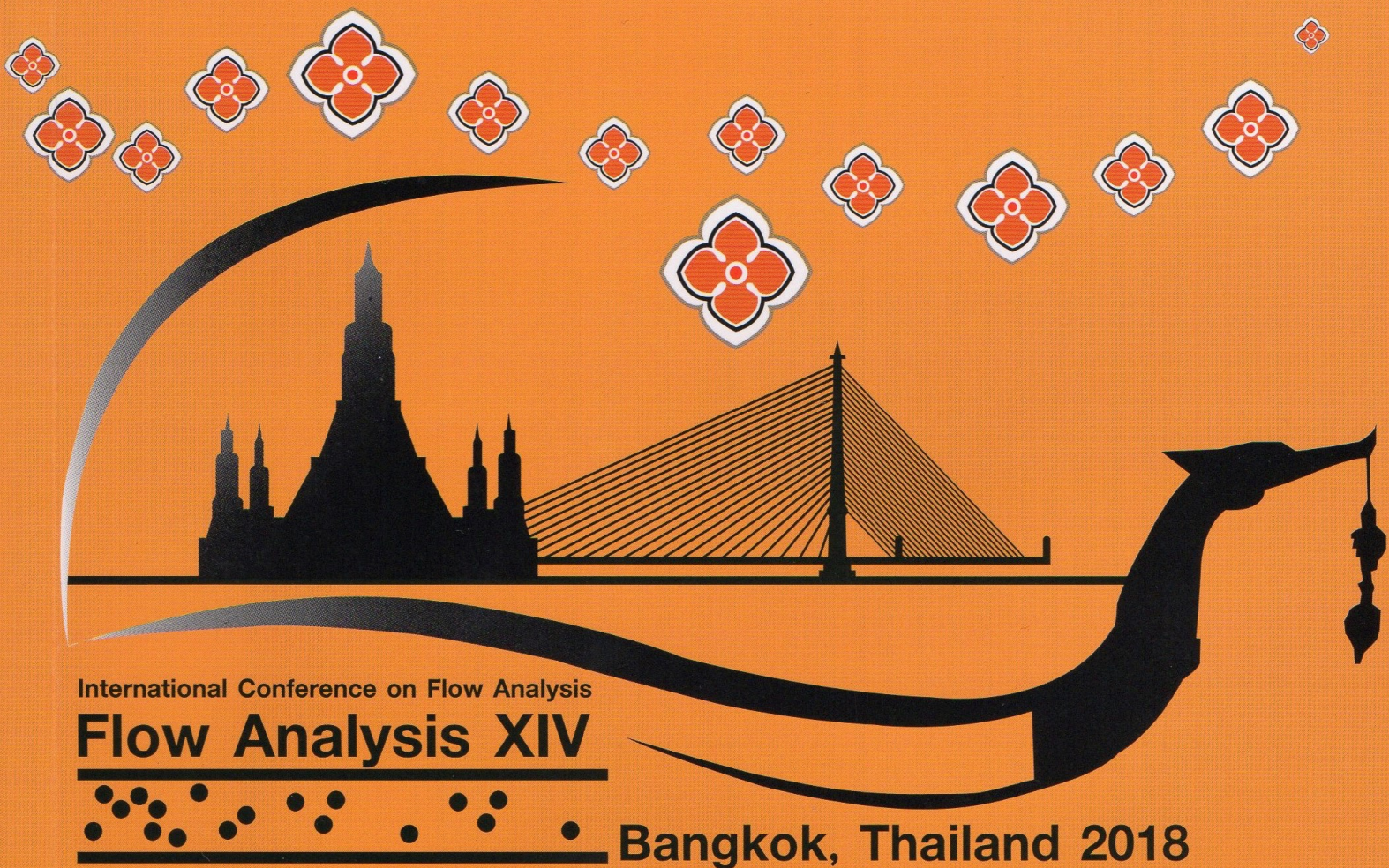


Abstract book

วิธีวิเคราะห์สมัยใหม่ biological อาหาร 2018 Excursion Gas diffusion
FIA μ PAD 14th การวิเคราะห์ MBLVP
CE SIA quantitative Flow Analysis Solid phase extraction
SIEMA ตัวอย่าง analysis
MSFIA การเตรียมตัวอย่าง 2018 ๑๔
Sample สเปกโทรสโกปี SIA CIA spectroscopy เคมีไฟฟ้า
Electrochemistry ๒๐๑๘ สิ่งแวดล้อม



Specially designed hydrophilic 3,4-HPO chelators to be used as chromogenic reagents for iron in a microfluidic paper-based analytical device

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Abstract

Chelators of the 3-hydroxy-4-pyridinone (3,4-HPO) class have been successfully used in flow analysis studies despite their low solubility in water [1, 2]. Improving the water solubility of these ligands would enable not only the improvement of detection limit but also the establishment of new approaches, namely in microfluidic paper-based analytical devices (μPADs). The idea of developing a μPAD is to attain a disposable device for in hand analysis, taking advantage of 3,4-HPO environmentally friendly and non-toxic nature, unlike traditional iron analytical reagents. New hydrophilic 3,4-HPO chelators used in the present work contain ether-derived chains in the ligands' structure and were obtained by greener methodologies. The aim of this work was to develop a μPAD for *in situ*, fast, cheap and on-hand iron determination in natural waters. The minimal consumption of both reagents and sample, key features of μPADs, coupled with the non-toxic reagent with improved solubility, the specially designed 3,4-HPO ligands, enable to achieve a disposable device ideally suited for unskilled operators. With a quantification range from 0.5-1.5 mg/L, 15 min of analysis time and no need of any previous sample treatments the developed μPAD was effectively applied to river, well and tap waters.

References:

- [1] R. Suárez, R.B.R. Mesquita, M. Rangel, V. Cerdà, A.O.S.S. Rangel, Talanta 133 (2015) 15-20;
- [2] R.B.R. Mesquita, R. Suárez, V. Cerdà, M. Rangel, A.O.S.S. Rangel, Talanta 108 (2013) 38.

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