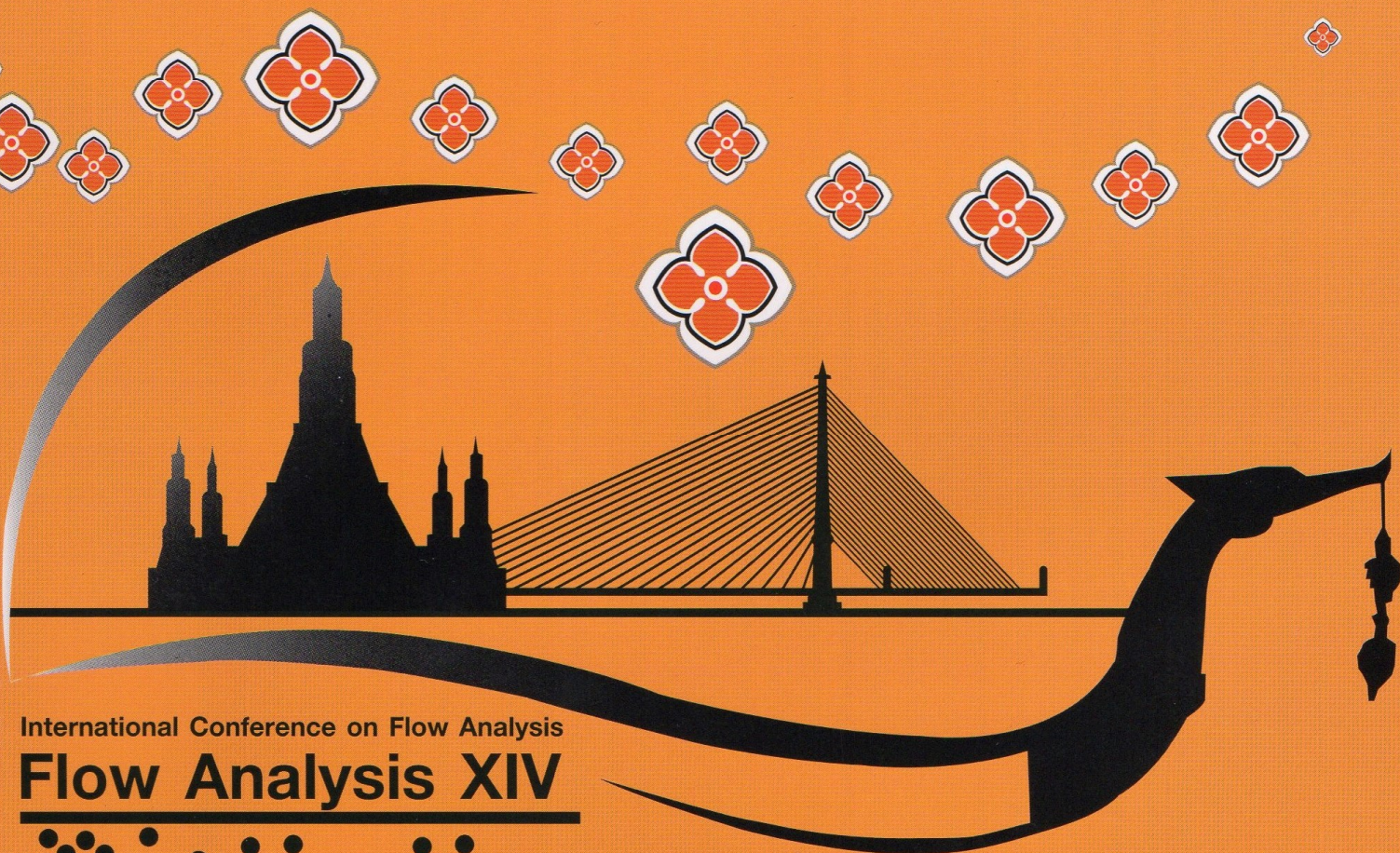


Abstract book

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



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Use of solid-phase extraction in a sequential injection mode for the determination of micronutrients

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Abstract

Micronutrients are essential for the normal functioning of living organisms, as they are vital for the production of enzymes and hormones (among other substances). Consequently, supplements containing these micronutrients are often used in agriculture, resulting in their leaching into ground water. In this scenario, a multiparametric sequential injection system with a spectrophotometric detection for the determination of cobalt, copper, zinc, and iron was developed. To conduct all determinations using a single manifold, a non-selective reagent, such as 4-(2-pyridylazo) resorcinol (PAR), was chosen as the colour reagent for the determination of cobalt, copper and zinc. As PAR is a non-specific reagent, solid phase extraction using two different sorbent materials was used to allow the determination of the individual metal ions. This technique is associated with a number of advantages, including selective separation of the analytes to eliminate complex matrix interferences. The materials used to selectively separate the copper and zinc ions were Chelex 100 and a PVC-based polymer inclusion membrane (PIM) containing di-(2-ethylhexyl)phosphoric acid (D2EHPA), respectively. For the determination of cobalt, an in-line standard addition method was developed. As a strategy for the iron determination, 3-hydroxy-4-pyridinone (MRB13) was considered as a highly selective iron chelator.

Keywords: Multiparametric system, sequential injection analysis, Micronutrients, Polymer inclusion membrane, Chelex 100

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