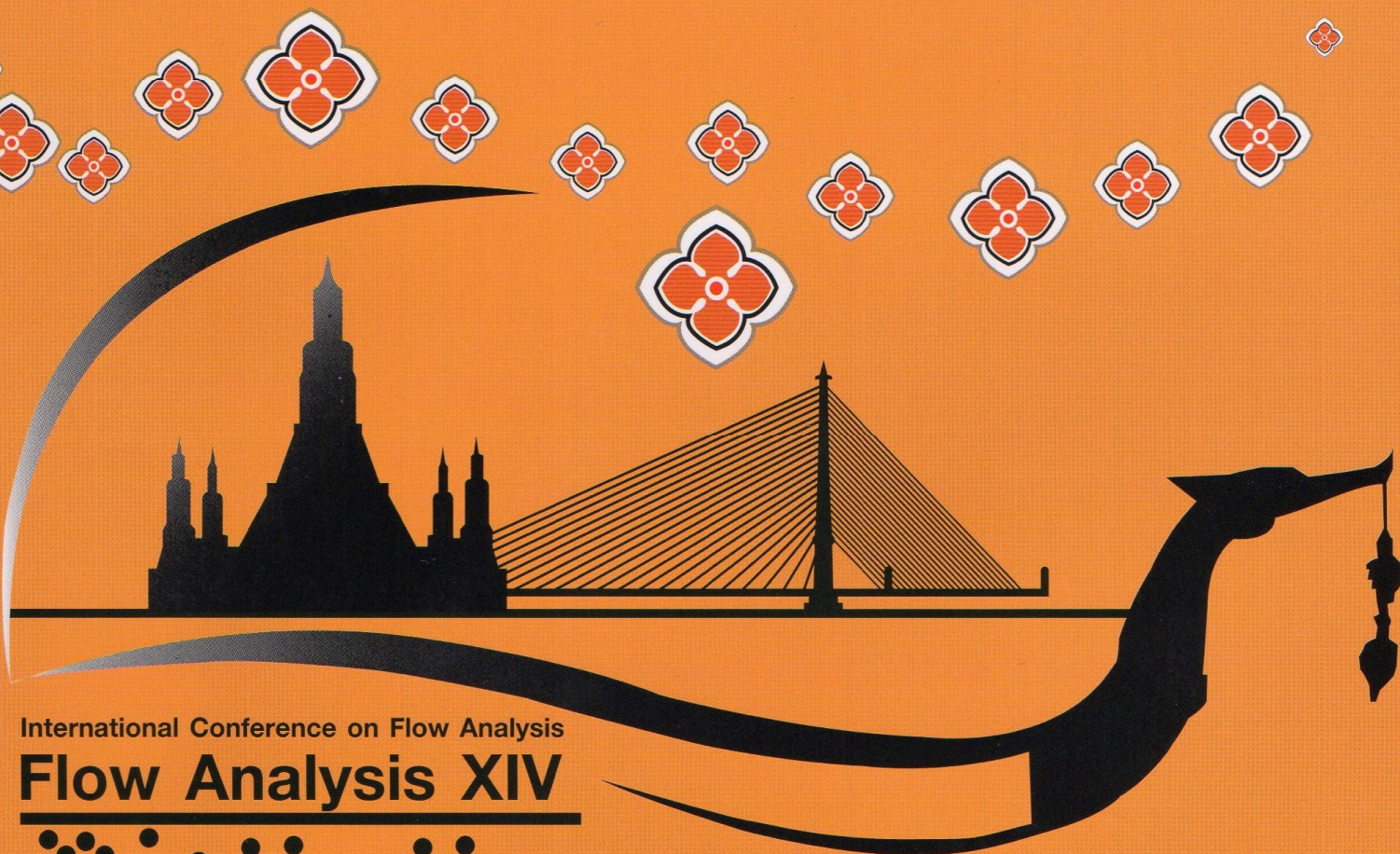


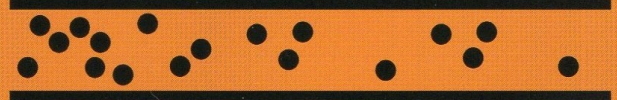
Abstract book

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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Exploring flow analysis tools for monitoring calcium and magnesium in soil leachates from laboratory scale soil columns (LSSCs)

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Abstract

Monitoring the soil/water interface has become fundamental for both environmental and agricultural studies. This work aimed to set up and monitor laboratory scale soil columns (LSSCs) using flow analysis methods for assessing nutrient levels and characterizing soil leachates. A flow analysis method was developed to determine calcium and magnesium concentrations, overcoming the disadvantages of conventional methods in terms of time consumption, waste production and cost. The LSSCs were set with soil cores from distinct locations to verify if soil type or sampling site affect leaching behaviour. Leachates were obtained through rain simulations with rain water. In order to establish valid comparisons, simulated rain was assessed before and after going through the LSSCs. The accommodation of both metals in the same sequential injection manifold was successfully attained, as well as the determination of ranges of calcium of 0.160-8.00 mg/L and 8.00-35.0 mg/L, and a range of magnesium of 0.160-8.00 mg/L. The developed method was successfully used to monitor different soils, allowing the assessment of two distinct metal ions in samples before and after going through the LSSCs. The limit of detection obtained for calcium and magnesium determinations were 7 and 8 µg/L, respectively and the effluent production was below 2.0 mL.

Keywords: Groundwaters, Bi-parametric determination, Ca²⁺ and Mg²⁺, Sequential injection, Soil quality

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