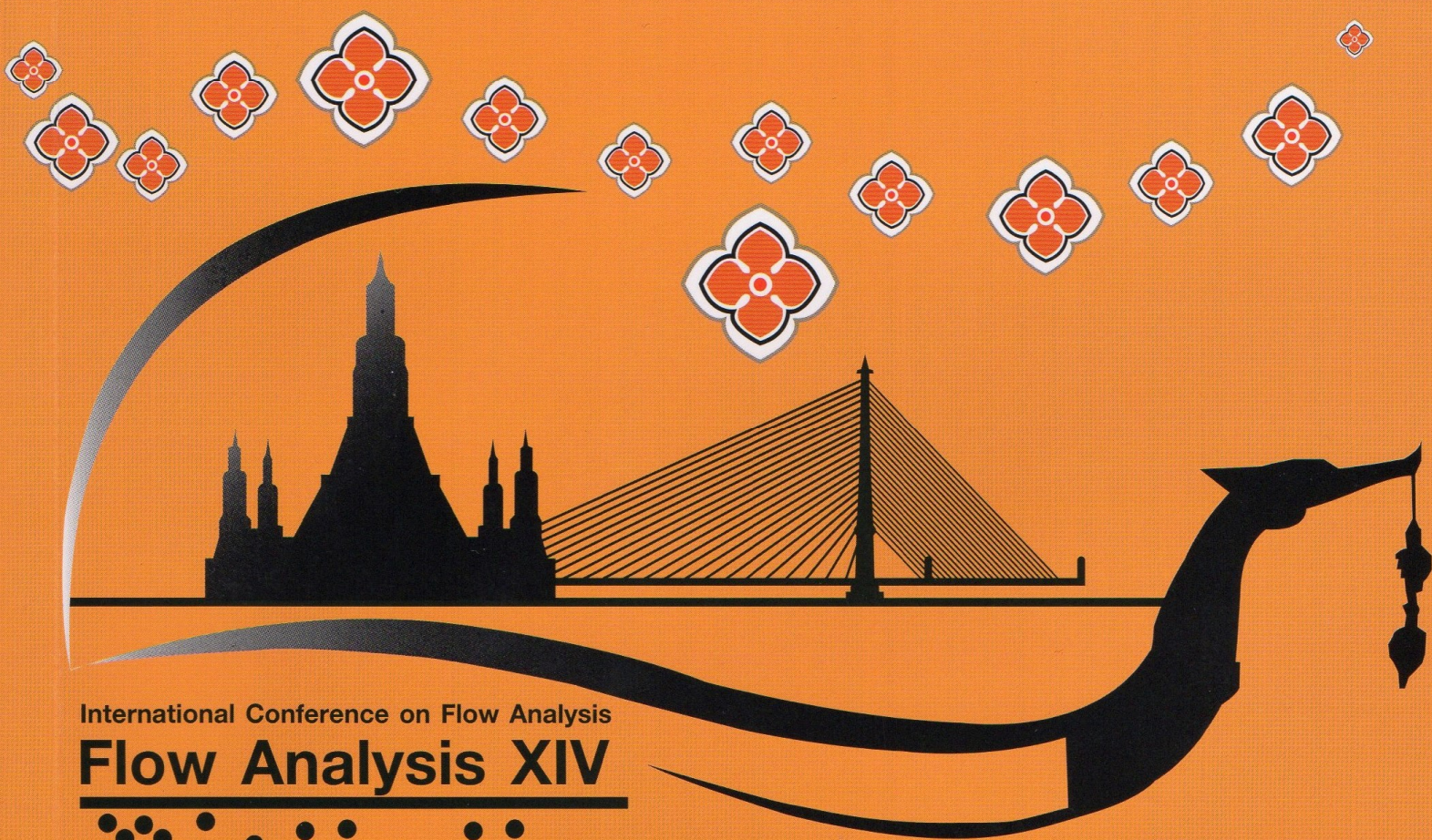


Abstract book

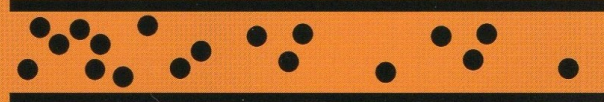
วิธีวิเคราะห์สมัยใหม่ biological 2018 Excursion Gas diffusion
FIA MPAD อาหาร 2018 GC MBLVP
CE การเตรียมตัวอย่าง quantitative 14th การวิเคราะห์
SIA Solid phase extraction
SIEMA ตัวอย่าง analysis
MSFIA 2018 ๑๔
Sample สเปกโทรสโกปี SIA CIA spectroscopy เคมีไฟฟ้า
Electrochemistry ๒๐๑๘ สิ่งแวดล้อม

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Development of a flow-based system for the determination of protein content in microbiological samples

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Abstract

Although bacteriocins are only a portion of the total protein content of a fermented chemically defined medium (CDM), they have a wide variety of applications. In this study, the bacteriocins produced by lactic acid bacteria were quantified by developing an automatic methodology in a flow injection analysis platform based on a Lowry assay. This methodology consists on the binding of Cu^{2+} to the protein, resulting in the reduction of the Cu^{2+} to Cu(I) . Afterwards, with the presence of the Folin-Ciocalteu reagent (FCr), Cu(I) is oxidized, reducing the FCr. This reduction produces a colour change of the solution that can be monitored at 750 nm [1, 2]. To minimize sample and reagent consumption, a merging zones approach was used.

It was possible to establish a linear relationship up to 0.5 g/L of BSA (model protein) with a limit of detection of 0.05 g/L. A low consumption of sample and reagents was also achieved with a determination rate of about 90 determinations per hour. The possible interferences from the compounds of the chemically defined culture medium will be evaluated and the system will be applied to the quantification of the total protein content produced in a chemically defined media.

Keywords: Flow injection analysis, Lowry method, protein quantification, spectrophotometry, microbiological samples.

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