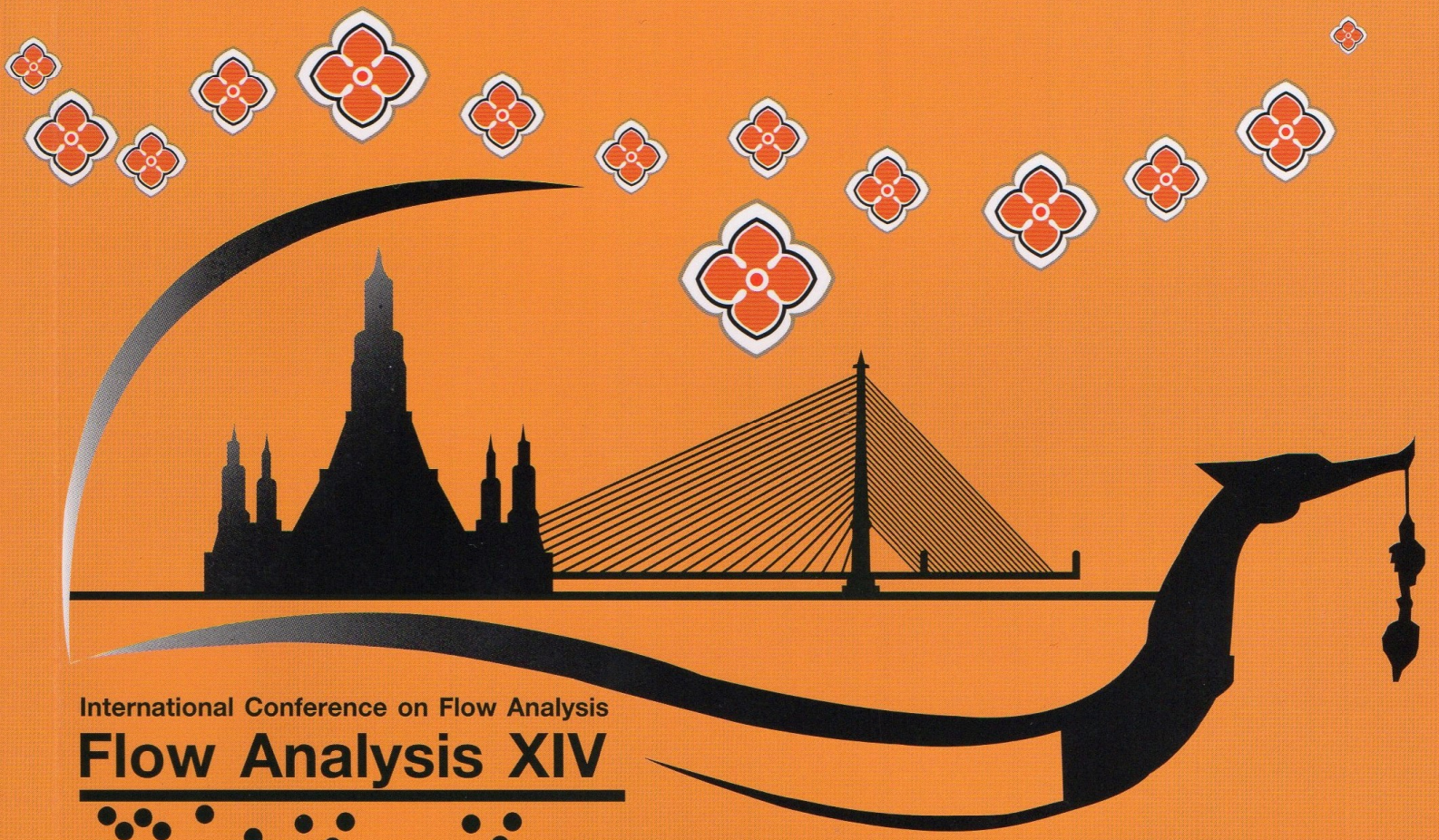
Abstract book



International Conference on Flow Analysis

Flow Analysis XIV

Bangkok, Thailand 2018

Determination of total phenolic content in wines using Folin-Ciocalteu assay in flow injection analysis system

Thinnapong Wongpakdee[1], Susana S. M. P. Vidigal[2*], Duangjai Nacapricha[1], António O. S. S. Rangel[2]

[1]*Flow Innovation-Research for Science and Technology Laboratories (FIRST Labs), Mahidol University Rama 6 Road, Bangkok 10400, Thailand*

[2]*Universidade Católica Portuguesa, CBQF - Centro de Biotecnologia e Química Fina – Laboratório Associado, Escola Superior de Biotecnologia, Rua Arquiteto Lobão Vital 172, 4200-374 Porto, Portugal*

**E-mail: svidigal@porto.ucp.pt*

Abstract

Total phenol content in wine plays an important role in astringency, bitterness, colour and other physical sensations. Therefore, this determination is a common analytical practice in the agri-food industry, specially, in the wine industry. The most frequently spectrophotometric method used is the Folin-Ciocalteu (FC) method. In fact, in wine cellars, the determination of total phenol content in frequently carried out using this method, that is also highly recommended by most of the wine legislation (OIV, CEE). The present work presents the development of a methodology for the determination of the total phenol content in wines based on the FC method in a flow injection analysis platform. In the developed method, a linear relationship, A = 0.012 (±0.001) [gallic acid] + 0.005 ± 0.007, up to 80 mg/L was possible to establish, with low limits of detection and quantification, 2.1 and 7.0 mg/L, respectively. A low consumption of sample and reagents was also obtained, with a determination rate of 31 per hour. The proposed method was used to quantify the total phenol content in red table wine samples and the results obtained were in good agreement with the ones from the reference method and from the recovery studies.

Keywords: Flow injection analysis, spectrophotometry, total phenol content, Folin-Ciocalteu method, wine samples.

Acknowledgements

Thinnapong Wongpakdee would like to thank the Science Achievement Scholarship of Thailand (SAST) for financial support through the research proceeding.

Susana Vidigal acknowledges the financial support in the framework of the project "Biological tools for adding and defending value in key agro-food chains (bio - n2 - value)", nº NORTE-01-0145-FEDER-000030, funded by Fundo Europeu de Desenvolvimento Regional (FEDER), under Programa Operacional Regional do Norte - Norte2020.

The authors would also like to thank the scientific collaboration of the project UID/Multi/50016/2013.