

Promotor

Prof. Yvan Vander Heyden

Department of Analytical Chemistry and
Pharmaceutical Technology
Vrije Universiteit Brussel

Copromotor

Dr. Bieke Dejaegher

Department of Analytical Chemistry and
Pharmaceutical Technology
Vrije Universiteit Brussel

Leden van de examencommissie

Prof. Michal Daszykowski

Chemometric Research Group
The University of Silesia
Katowice, Poland

Prof. Sandra Apers

Laboratory of Pharmacognosy and Pharmaceutical
Analysis
Universiteit Antwerpen

Prof. Kristiaan Demeyer

Department of Toxicology, Dermato-Cosmetology
and Pharmacognosy
Vrije Universiteit Brussel

Prof. Vera Rogiers, voorzitter

Department of Toxicology, Dermato-Cosmetology
and Pharmacognosy
Vrije Universiteit Brussel



Vrije Universiteit Brussel

FACULTEIT GENEESKUNDE EN FARMACIE

Doctoraat in de Farmaceutische Wetenschappen

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UITNODIGING

Voor de openbare verdediging van het
doctoraatsproefschrift van

Christophe TISTAERT

Dinsdag 22 mei 2012

U wordt vriendelijk uitgenodigd op de openbare verdediging van het proefschrift van

Christophe TISTAERT

'Data analysis of chromatographic fingerprints'

Op dinsdag 22 mei 2012 om **17 uur** in auditorium **R. Vanden Driessche** van de Faculteit Geneeskunde & Farmacie Laarbeeklaan 103, 1090 Brussel

Situering van het proefschrift

Chromatographic fingerprinting is rapidly emerging as the tool of interest for the analysis of samples with a complex composition. By spreading the chemical information over time, the individual compounds are revealed, resulting in a characteristic profile. Based on this information, quality control criteria are gradually redefined and higher standards are set.

However, the abundance of data generated also introduces new challenges to the field. In this context, the thesis deals with the extraction of the relevant information from the fingerprints. Based on the interaction between the data and chemometric tools, the differentiation of related herbal species is addressed. The constructed discrimination models also allow identifying potential marker compounds which can be used to update the currently defined quality control criteria. Additionally, the pharmacological activity of natural products is linked to their fingerprints, indicating the compounds potentially responsible for the measured activity.

Besides the applications, the thesis also addresses some fundamental challenges in the data analysis of fingerprints. By introducing the available spectral data, bilinear resolution methods are further developed and implemented to cope with the complexity of the data. Their applicability is demonstrated resolving constituents with a high degree of overlap, while providing a solution for peak shifting and quantification issues.

Curriculum Vitae

Christophe Tistaert was born on March 28, 1984 in Tongeren. In 2002, he started his pharmacy studies at the Katholieke Universiteit Leuven (KUL). His master's thesis, entitled 'Expression of TAFI inhibiting single-chain variable fragments in *Pichia pastoris*' inspired him to continue research.

After his graduation in 2007, he started a PhD in Pharmaceutical Sciences at the Department of Analytical Chemistry and Pharmaceutical Technology (FABI) of the Vrije Universiteit Brussel (VUB). Under supervision of Prof. Yvan Vander Heyden, he performed research on the development and data analysis of chromatographic fingerprints from biological samples. Additionally, he assisted in the practical courses of Analytical Chemistry, Instrumental Chemistry and Problem-based Learning, and was co-promotor of 3 Master theses in Pharmaceutical Sciences. In 2010, he had a stay at the Department of Chemistry (Prof. Sarah C. Rutan) of the Virginia Commonwealth University (VCU), Virginia, United States to develop data analytical algorithms for the analysis of multi-dimensional chromatographic data.

Christophe is author of several publications in international peer-reviewed journals and gave numerous oral and poster presentations concerning chemometrics and analytical chemistry at national and international conferences and workshops.