

Promotoren

Prof. Yvan Vander Heyden

Prof. Debby Mangelings

Department of Analytical Chemistry and
Pharmaceutical Technology (FABI)
Vrije Universiteit Brussel

Leden van de examencommissie

Dr. Catherine Perrin

Laboratoire de Chimie Analytique
Institut des Biomolécules Max Mousseron,
Montpellier, France

Prof. Marianne Fillet

Service d'Analyse des Médicaments
Institut de Pharmacie
Université de Liège

Prof. Kristiaan Demeyer

Department of Toxicology, Dermato-cosmetology
and Pharmacognosy (FAFY)
Vrije Universiteit Brussel

Dr. Bert Thys

Department of Pharmaceutical Biotechnology and
Molecular Biology (MICH)
Vrije Universiteit Brussel

Prof. Vera Rogiers, voorzitter

Department of Toxicology, Dermato-cosmetology
and Pharmacognosy (FAFY)
Vrije Universiteit Brussel



Vrije Universiteit Brussel

FACULTEIT GENEESKUNDE EN FARMACIE

Doctoraat in de Farmaceutische Wetenschappen

Academiejaar 2011-2012

UITNODIGING

Voor de openbare verdediging van het
doctoraatsproefschrift van

**Ahmed Abdullah AbdelFattah
Younes**

Maandag 18 juni 2012

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

**Ahmed Abdullah AbdelFattah
Younes**

**'Evaluation of Recently Introduced
Polysaccharide-Based Chiral
Stationary Phases to Update Generic
Separation Strategies in NPLC and
RPLC'**

Op **maandag 18 juni 2012** om **17 uur** in
auditorium **3** van de
Faculteit Geneeskunde & Farmacie
Laarbeeklaan 103, 1090 Brussel

Situering van het proefschrift

Separation of chiral drug molecules gained an increased interest during the last three decades due to the fact that enantiomers of a chiral molecule may possess different pharmacological and pharmacokinetic properties when entering living systems. Therefore, enantiomeric separation of chiral compounds is thus a critical challenge in drug discovery, development and assay. Several separation techniques are possible for chiral separations, of which direct high-performance liquid chromatography chiral separations using chiral stationary phases (CSPs) are the most widely used. Among the commercially available CSPs, those containing polysaccharide-based selectors showed a broad enantioselectivity and the ability to separate more than 80% of the known chiral drugs.

The present work evaluates the enantioselectivity of recently commercialized chlorinated and non-chlorinated polysaccharide-based CSPs by applying the screening conditions of previously developed generic separation strategies in normal- and reversed-phase liquid chromatography. The goal of this evaluation is to find out whether the new CSPs show either broader or complementary enantioselectivity to the classic ones, already included in the previously developed strategies. The outcomes of this thesis emphasized that the newly commercialized CSPs have at least a comparable enantioselectivity to the classic ones. Therefore, separation strategies using a combination of both sets of CSPs were defined, and resulted in higher success rates of separation for a diverse test set of compounds.

Curriculum Vitae

Ahmed Younes was born on February 7, 1981 in Cairo, Egypt. In May 2002, he graduated with distinction as a chemist from the faculty of science, Helwan University. Between 2002 and 2007, he was appointed as a demonstrator in practical courses of analytical chemistry at the same faculty. In July 2007, Ahmed obtained his master degree, from the same university, with a thesis entitled "On-line pre-concentration system for the determination of some pollutants in aqueous media".

In 2009, Ahmed got an Erasmus mundus PhD scholarship. In April 2009, he joined the research team of the Department of Analytical Chemistry and Pharmaceutical Technology (FABI)-Vrije Universiteit Brussel and started his PhD project, which evaluates new stationary phases for chiral separation of pharmaceuticals using high-performance liquid chromatography, under the supervision of prof. Yvan Vander Heyden and prof. Debby Mangelings. The project generated five research articles, of which two were published and three are submitted. Moreover, one book chapter was also accepted for publication.

During his stay at FABI, Ahmed supervised two master theses in pharmaceutical sciences as well as a Spanish student in the Erasmus students exchange program. He also participated in several national and international scientific conferences, with either oral or poster presentations.