

Book of Abstracts



Vrije Universiteit Brussel



Universiteit
Antwerpen

Radboud Universiteit Nijmegen



CAC - 2010

Twelfth International Conference on Chemometrics in Analytical Chemistry

In collaboration with:
Belgian Chemometrics Society (KVCV-BCS)



SAC

KNCV Sectie Analytische Chemie

Welcome

Dear participant

Ten years after the seventh CAC-2000 in Antwerp it is a great pleasure to welcome you again in Antwerp. It was exactly at that conference that the permanent committee has decided to organize this conference alternating in Europe and outside Europe. After the very successful conference in Montpellier two years ago we therefore expected that CAC-2010 would have been organized in the US. However due to global reasons beyond the control of scientists, we regret that despite great efforts of our US colleagues, this appeared not to be feasible. Because this conference is one of the most important opportunities for chemometricians to share results and ideas, a few members of the permanent committee joined forces to organize the 12th CAC in the Benelux. Remembering the successful CAC-2000 ten years ago and with the kind offer of the University of Antwerp to help us with the organization at short notice, Antwerp was an obvious choice.

We gratefully thank Luc Van't dack for his hard work and ever lasting effort. Without his professional organisation skills and unbelievable efficiency we would never have succeeded.

Thanks to the active help of all members of the scientific committee we are able to propose you an inspiring scientific programme covering the main challenges in modern chemometrics. It is a bizarre observation that while the chemical data constitute our 'raison d'être', we are now facing the strange challenge not to be drawn in proverbial data-tsunamis. Our usual workhorses, such as principal components analysis, are cracking under their weight. It is up to us to develop creative strategies and methods to withstand these data-tsunamis !

To stimulate discussions we have organized all lunches, coffee breaks and poster presentations in the same area. All posters are exposed during the whole conference.

On Thursday afternoon the "D.L. Massart Award" of the Belgian Chemical Society is presented. All lectures in that session are related to the topic of the award winner.

Of course we are also proud of our beautiful city of Antwerp and we are delighted to offer you on Tuesday night an exclusive organ concert in the beautiful Cathedral of Our Lady, amongst others known for the impressive Rubens paintings. On Wednesday night we offer you the conference dinner in the Marble hall of the Antwerp Zoo, next to the monumental Central Railway Station, which on its own is worth a visit.

We hope that you will enjoy the conference and look forward to meeting you again in the inspiring environment of the cultural conference center Elzenveld, what used to be a hospital for many centuries, a magnificent green oasis of peace and quietness !

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FLUORESCENCE IMAGES COMBINED TO CHEMOMETRICS FOR THE INVESTIGATION OF PLANTS INOCULATED WITH CANDIDATUS LIBERIBACTER ASIATICUS

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Abstract

This analytical study investigated the effects of *Candidatus Liberibacter asiaticus* (CLas) bacteria on citrus plants using fluorescence microscope images. The bacteria CLas is one of the main causal agents of citrus greening (or also known Huanglongbing). The analyses were performed in two conditions of plants with equal size: healthy (60 plants) and inoculated (60 plants). Those healthy plants were kept as control samples. The plants were measured monthly and the proliferation of the CLas on inoculated plants was monitored by RT-qPCR (real-time quantitative PCR) amplification of CLas sequences. Exploratory analyses using PCA (principal component analysis) and HCA (hierarchical cluster analysis) were performed on microscope image data. The darker colours of green were the fingerprinting of healthy plants and the light ones for the diseased plants. The main advantage obtained with this method was a proposition of fingerprinting of healthy and diseased plants. A new pattern of analysis and a non-destructive method was introduced that can minimize the time and costs of analyses. Additionally, this method can contribute with further information without subjectiveness. The noteworthy characteristics were analyses without pre-treatment of the leaves, low cost of image acquisition when compared with the nowadays methods and even and it was not consumed any chemical reagent for acquisition of the images. The obtained results were preliminary and improving the viability of the early diagnostic of citrus greening. The target is to minimize inoculums spread in orchards.