The Chancellor of Ghent University has the honour of inviting you to attend the public defense of the doctoral dissertation of

**Nikki De Clercq**

**Title of the doctoral dissertation:**

*Identification and characterisation of spoilage moulds in chocolate confectionery and patulin-producing moulds in apples*

The public defense will take place on **June 13th 2016 at 2:00 pm** in the Academieraadzaal (Hall of the Academic Board), room A 0.030, Faculty of Bioscience Engineering, Coupure links 653, 9000 Ghent.

There will be a contiguous reception to which you are heartily invited. **Please confirm your attendance before June 9th** to: nikki.declercq@ilvo.vlaanderen.be or 0489/91.62.39

**Abstract of the doctoral research**

The ubiquitous nature of fungi leads to losses worldwide because of deterioration of food and feed, as well as infections in plants, humans and animals. Their presence in food and feed commodities is very often undesirable as mould growth is in many cases associated with spoilage (e.g. off-flavour and discoloration), and in certain cases with mycotoxin contamination and related public health concerns.

Chocolate confectionery and apples are two important Belgian food products, each characterised by their own fungal problems and related economic implications. Xerophilic fungi are common spoilage organisms of intermediate-moisture food products e.g. chocolate confectionery fillings. These fungi, originating from the air or ingredients, may result in (post-process) contamination of these fillings, causing a decrease in shelf life. *Penicillium expansum* is the main cause of blue mould rot, a serious post-harvest disease on apples worldwide. During long-term storage of apples, *P. expansum* produces the mycotoxin patulin, which may end up in apple-based products such as apple juice. Despite efforts to control or avoid contamination by moulds and their mycotoxins, they remain to occur frequently in food commodities.

The correct identification of these fungi of relevance for specific food products, and the mechanisms involved in regulating fungal growth and mycotoxin biosynthesis, are very complex and specific, and still remain to be elucidated. Therefore, prevention and control strategies can only be successful when the identity and characteristics of the associated mycobiota are well known. Hence, the general scope of this PhD thesis was detection, identification and characterisation of the mycobiota associated with two types of foods: chocolate confectionery and apples. Within this scope, focus was first put on optimizing and developing methodologies through the application of a multidisciplinary research approach, i.e. a combination of conventional, molecular and/or chemotaxonomical analysis. In particular, an RT-qPCR was developed to measure gene expression and an HPLC-UV method was optimised for patulin analysis.

**Brief Curriculum Vitae**

Nikki De Clercq was born in Waregem on November 20th, 1985. She obtained her high school degree in Science-Mathematics at Bernarduscollege Oudenaarde in 2003 and her Master degree in Biology in Ghent in 2009. Nikki obtained a 2-year fellowship at the University of Valencia (Spain) during which she gained scientific experience in the field of molecular biology. After finishing the project, she pursued a new challenge and started her PhD in 2011 at the Institute for Agricultural and Fisheries Research (ILVO).

During her PhD study, she guided bachelor students in the course of their thesis and assisted with practical exercises. She presented her work at national and international symposia and conferences. She is author and co-author of several international peer-reviewed publications.