

## *Fusarium* Laboratory Workshop

Kansas State University, Manhattan, Kansas State, USA

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*Prepared by Marija Kvas, (M.Sc. candidate studying Fusarium spp. associated with inflorescence malformation on Syzigium cordatum).*

This year, I was very fortunate to be supported by the DST/NRF Centre of Excellence in Tree Health Biotechnology (CTHB) to attend the world-recognised *Fusarium* laboratory workshop at Kansas State University.

My journey began on the 22nd of June and after crossing three continents I arrived 24 hours later at KSU. This university is located in Manhattan and was founded in 1863. It is home to more than 23 000 students who represent the “heart beat” of this small agricultural town. Every second year, KSU hosts the *Fusarium* Laboratory Workshop organized by Prof John Leslie and various of his colleagues.

This year’s workshop had approximately 40 participants from a number of countries in Africa, Europe, Asia and the Americas. It started with a social event at Manhattan Train Station where we enjoyed delicious grilled chicken and giant chocolate chip cookies. While dining, we were introduced to our instructors and lecturers including experts in *Fusarium* identification, taxonomy, mycotoxin production, genetics and phylogenetics, who had gathered together to educate and train future generations of plant pathologists and mycologists. They were: Dr. Brett Summerell (Royal Botanic Gardens, Sydney, Australia), a well known *Fusarium* taxonomist; Dr. David Geiser (Pennsylvania State University) a fungal evolutionary biologist Dr. Baharuddin Salleh (University of Malaysia) an expert in *Fusarium* species associated with tropical crops diseases; Dr. Yin-Won Lee (Seoul National University) specializing in molecular biology techniques used for *Fusarium*; Dr. Anne Desjardins (USDA-ARS) and Dr. Antonio Logrieco (ISPA-CNR, Italy), both experts in mycotoxigenic *Fusarium* species. After mingling and enjoying an evening making new friends, the delegates returned to Haymaker Residence Hall. This was our ‘hotel’, situated close to Throckmorton Plant Sciences Center, where we would be attending lectures and carrying out laboratory work for the duration of the workshop.

During the workshop we had the opportunity to learn morphological and DNA-based techniques commonly used for identification and characterisation of *Fusarium* species. We were initially introduced to various plant pathogenic *Fusarium* species associated with economic losses, yield reduction and food quality loss. Thereafter, we learned about the morphological characters that define this group of fungi and we had the opportunity to examine more than 70 different *Fusarium* species under the microscope. We also learned how to make and score tests for vegetative compatibility groups and mating types. On the molecular biology side, we performed DNA extractions, PCR and DNA sequence analyses. We were also presented with lectures on population genetics and *Fusarium* species concepts, as well as concerning the importance and impact of *Fusarium* mycotoxins.

While the learning experience was intensive, social events also played an important part in getting to know people. For me, most memorable was a visit together with Dave Kendra (USDA-ARS), Amber Anderson (USDA-ARS), Deborah Marr (Indiana University South Bend) and Sladjana Bec (University of Kentucky), to the Konza Prairie, located south of Manhattan. We hiked a 5-mile long trail exploring the largest remaining area of native tallgrass, from which Kurt Zeller and his co-workers described *Fusarium konzum* in 2003. Although not entirely comparable to the breath-taking beauty of the South African bushveld fauna and flora, we thoroughly enjoyed our walk in the seemingly never-ending green hills of the prairie.

Another social event highlight was the pool party at the Leslie home, where lemonade and beer flowed while we enjoyed a USA barbeque and live music played by a local band. One of the delegates, Erik Lysoe (Bioforsk, Norway), was brave enough to sing a song for us accompanied by the band. As with all good pool parties, this one ended with many fully clothed people jumping or being thrown into the pool. This year John Leslie was unfortunate enough to be the first person thrown into the pool - certainly no justice shown, given the huge amount of time and effort that he had put into organising the workshop.



**Top left:** Sladjana Bec and Marija Kvas fascinated by *Fusarium*; **Top right:** Taking a break - Anne Desjardins, Antonio Logrieco, Baharuddin Salleh and Yin-Won Lee; **Centre:** “Marija in *Fusarium*land”; **Bottom left:** David Geiser with “students”; **Bottom centre:** Final thanks - John Leslie and Brett Summerell; **Bottom right:** Nothing like a good beer - David Geiser, Brett Summerell, Eunwoo Park and Gilberto Olaya