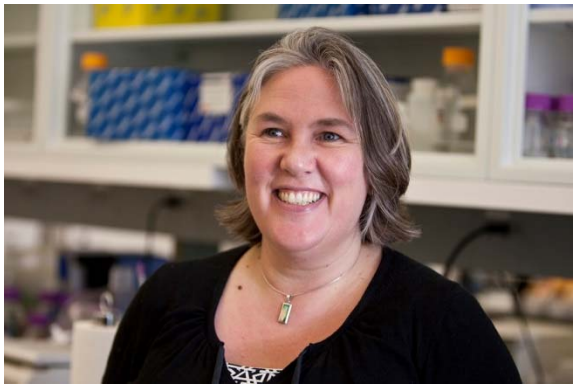
Thursday 17 Oct 2013

CHEMICAL DIVERSITY OF BIOACTIVE ALKALOIDS PRODUCED BY ENDOPHYTES OF COOL SEASON GRASSES



Carolyn A. Young

Forage Improvement Division,
The Samuel Roberts Noble Foundation, Ardmore, OK

Cool season grasses from the subfamily Pooideae have extremely wide distributions, inhabiting many different ecological niches. For some, much of their success can be attributed to fungal symbiotic partners (endophytes) known collectively as the epichloae (*Epichloë* and *Neotyphodium* species). The epichloae can produce a range of bioactive alkaloids know as the ergot alkaloids, indole-diterpenes, lolines and peramine. These fungi can also exhibit considerable chemotypic diversity within the pathways of these four alkaloid classes. As with other fungal secondary metabolite biosynthesis genes, the genes for three of the four alkaloid groups are present as co-regulated gene clusters. Generally, the inability of the endophyte to synthesize an alkaloid *in planta* is due to the absence of key pathway genes or complete gene clusters. This provides insight into the complex metabolic pathways required to produce these alkaloids. Taking advantage of the current epichloae genome sequencing efforts, we are now able to develop simple approaches to rapidly screen grass populations to identify endophyte diversity. Molecular analyses of endophyte genetic traits from within and between host populations allow us to explore resident endophyte diversity present in a single grass host species. The diverse evolutionary histories of the epichloae identified within the grass collections provide insight into the broader ecological implications of endophyte-plant symbioses.

5:30-6:30 pm Social Hour
6:30-7:30 pm Dinner
7:30-8:30 pm Presentation (3410)
enter building via SW door,
the other doors will be locked

The University of Oklahoma
Stephenson Life Sciences Research Center
101 Stephenson Parkway, Norman, OK
map: http://www.ou.edu/home/map.html
(Parking and entrance door map on other side of flyer.)

OU map
QR code

Catering from Billy Sims BBQ
Sliced Brisket
Pulled Pork
Sliced Turkey
Potato Salad / Billy Beans / Cole Slaw
iced tea
Dessert: Brownies

RSVP is not require to attend the presentation.

Cost
$20 members
$10 graduate students
$ 5 undergraduate students

RSVP Deadline
Friday, Oct 11th, 5 pm
Contact: Paul Sims
405-325-1324
psims@ou.edu

Carolyn A. Young Biographical Sketch

Carolyn Young has 20 years of experience in the field of secondary metabolism in fungi, with a particular interest in the alkaloids produced by epichloë endophytes. She has cloned and characterized genes involved in the biosynthesis of indole-diterpenes, which are known neurotoxins. Dr Young joined the Forage Improvement Division at the Noble Foundation in 2006 to lead a research program on endophytes in cool season grasses. Dr Young completed her studies at Massey University, in Palmerston North, New Zealand where she earned her BSc (1993), MSc (1999) and PhD (2005) in molecular biology from the Institute of Molecular BioSciences.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