Defining the metabolism of a common forage mycotoxin in camels from the Middle East

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Camels have been an indispensable resource to the Bedouin-they provide transportation, food and clothing products which have enabled people to inhabit the desert for thousands of years. In addition, camels are interwoven into the cultural fabric of the Middle East/Asia through the sport of camel racing. Camels consume a varied diet, one of the components of which is grass/hay. Recently, the United Arab Emirates has increased the importation of tall fescue (*Festuca arundinacea*) hay from the United States as part of the grass/hay ration fed to camels. Unfortunately, tall fescue is infected with the endophyte *Neotyphodium coenophialum* which produces ergovaline, a toxic ergot alkaloid responsible for eliciting the diseases known as 'fescue foot,' 'summer slump' and abortions in domesticated cattle, sheep, alpacas, deer and horses. Clinical cases of fescue toxicosis have been observed in camelids; however, it is currently unknown what level of ergovaline is needed to produce this disease in camels, and thus, how management practices should be adjusted to ensure that ***safe feeding*** of this forage is achieved.

A range-finding experiment examining the threshold of toxicity for ergovaline in camels will be conducted in the spring of 2013. As part of this study, urine and fecal samples will be collected every week in order to define the elimination pathway for ergovaline in camels, using LC-MS/MS technology. This project is biochemical/metabolomic in nature and will involve extracting urine and fecal samples for ergovaline and its metabolites in order to build a basic toxicokinetic model of this forage mycotoxin. This project is appropriate for students interested in food animals/promotion of safe feed and metabolism/biochemistry of xenobiotics, with an emphasis on learning and applying mass spectrometry techniques.