

Friday, October 9, 9:35-10:25 a.m.

Toni M. Kutchan, Ph.D., Donald Danforth Plant Science Center

Nitrogenous solutions to a plant's dilemma

Plant secondary metabolites, also referred to as natural products or specialized metabolites, constitute an enormously rich reservoir of chemical biodiversity. More than 200,000 diverse chemical structures have been identified. Secondary metabolites have internal roles in plants and are integral to the communication of a plant with its environment. This interaction can be an accumulation of pigments in flower petals, or a release of volatile chemicals by flowers to attract pollinators. It can be the release of volatiles by a leaf damaged by a grazing caterpillar to attract predatory wasps in a tritrophic interaction, or the production of bitter or toxic chemicals that serve as antifeedants. It can be the release by roots of secondary metabolites into the rhizosphere to attract beneficial soil microorganisms. Some of the best-studied plant natural products contain nitrogen. We will discuss what is understood about the composition and organizational structure of selected pathways to nitrogenous natural products, which provide insights into how these biochemical pathways may have evolved.