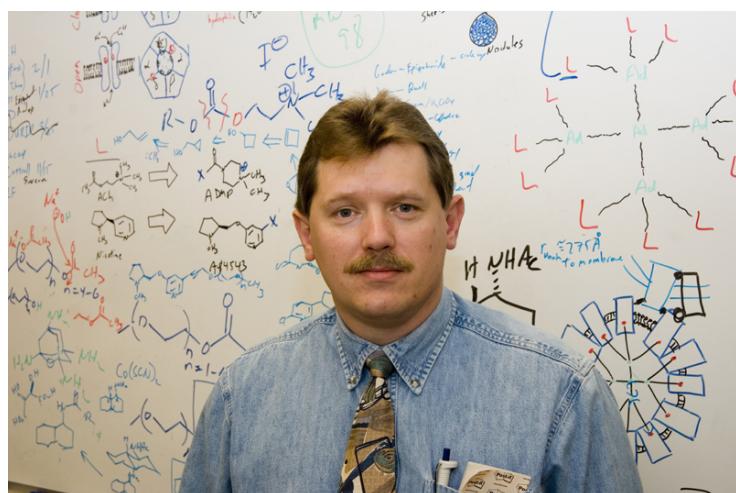




ACS Local Section
Indiana-Kentucky Border

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Frog and Toad are Toxic: Chemistry, Ecology and Pharmacology of Poison Frog Alkaloids

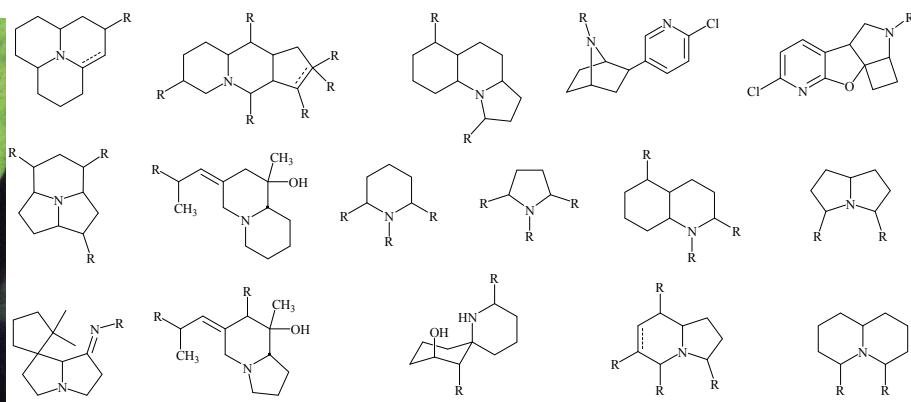
Tuesday, February 24, 2026 at 7:00 PM

Kentucky Wesleyan College
Hahn Science Center, Room 106

Frog and Toad are Toxic: Chemistry, Ecology and Pharmacology of Poison Frog Alkaloids

Richard W. Fitch, Department of Chemistry and Physics, Indiana State University

Natural products is a fascinating field of secondary metabolomics. These molecules are not strictly necessary for physiological function but are often used for defense or communication and are sometimes referred to as semiochemicals. The molecules in which our laboratory is interested are alkaloids. Alkaloids serve a wide variety of biological roles, and our laboratory is interested in the identification, isolation, synthesis pharmacology and ecology of these compounds. Our organisms of interest are frogs, particularly brightly colored aposematic poison frogs of tropical rainforests. These frogs sequester alkaloids obtained from their arthropod diet and by that mechanism, these anuran bioprospectors contain a diverse array of alkaloids (over 1100 in 30 or so structural classes). Much of our recent work has focused on the analysis of these, as the sheer number of possible alkaloids tests even the most powerful of analytical methods. We focus largely on mass spectrometry, coupled to either liquid or gas chromatography and employ high resolution techniques in separation and mass analysis. This presentation will cover our current efforts in building a comprehensive database of analytical data for unambiguous assignment of structure as well as our current forays into mass spectral imaging for the analysis of the distribution and metabolism of toxic alkaloids in chemically defended species.



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