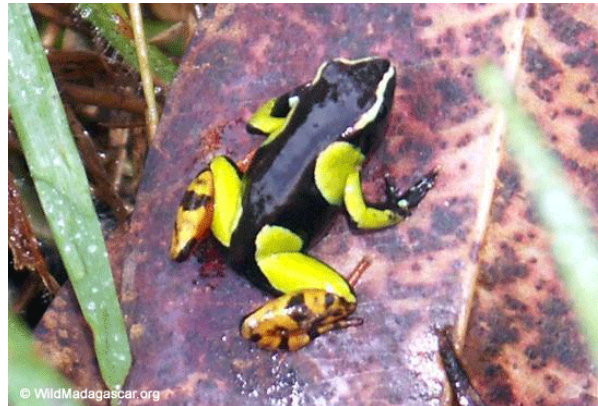


Release from the *Proceedings of the National Academy of Sciences*: Convergent Evolution of Poison Frogs and Ants

A steady diet of ants may have driven the convergent evolution of poisonous frogs in Madagascar and the Americas, researchers report.

Some frog species in both Madagascar and the Neotropics secrete a variety of toxic skin chemicals, called alkaloids, for protection against predation. These "poison frogs" do not produce the alkaloids, however, but instead attain them from their insect-rich diet. While Neotropical frogs are well-studied, the alkaloid sources for Malagasy frogs are unknown. Valerie Clark and colleagues extracted alkaloid samples from both Malagasy frogs and their food sources, which were determined by examining the frogs' stomach contents. The authors found that Malagasy frogs, like their New World counterparts, acquire their alkaloids from a diet rich in ants. Thirteen of the 16 Malagasy alkaloids detected are also known to exist in insects and frogs in the Americas. Neither the frogs nor the ants in these two regions are closely related, which suggests that the evolution of acquisition mechanisms for protective alkaloids in these ant species was likely responsible for the subsequent convergent evolution of the frogs that preyed on them. Additionally, the researchers found the well-known plant alkaloid nicotine in one Malagasy frog species, suggesting a possible plant-insect-frog toxin food chain.



Painted mantella (*Mantella madagascariensis*) in Madagascar.

Article #03502: "Convergent evolution of chemical defense in poison frogs and arthropod prey between Madagascar and the Neotropics" by Valerie C. Clark, Christopher J. Raxworthy, Valérie Rakotomalala, Petra Sierwald, and Brian L. Fisher

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