



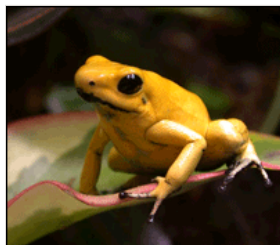
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Researchers Pinpoint Source of Poison Frogs' Deadly Defenses

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By Sarah Graham



VALERIE C. CLARK

The poison frogs of Central and South America are as deadly as they are beautiful, thanks to chemicals called alkaloids that they secrete through their skin. Indeed, the venom from a single golden poison frog, for example, can kill 10 humans. Now researchers have unlocked the secrets of their counterparts in Madagascar and found that they employ the same method of acquiring their toxins: through careful food consumption.

Studies of these frogs in the Neotropics indicated that a diet rich in ants provided the alkaloids, but whether the same held true for Malagasy populations was unknown. Now Valerie Clark of Columbia University and the American Museum of Natural History in New York City and her colleagues have resolved the mystery. By analyzing three poison frog species from Madagascar and their potential food sources, the team found that ants--including one species not previously known to impart poisonous alkaloids--provide the Malagasy frogs with the chemicals that comprise their toxic secretions. Three of the chemicals are unique to creature living in

Madagascar.

Because neither the frogs nor the ants from the two regions are closely related, the results indicate that the ability to utilize ants both as food and as the source of a defense weapon against danger developed independently in two diverse regions of the world. In a paper published online this week by the *Proceedings of the National Academy of Sciences*, the researchers posit that the earlier convergent [evolution](#) of ants containing the proper chemicals may have been the critical prerequisite for the development of poison frogs in distant locales.

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