

# Re: Animals that are poisonous to ingestion Social Behavior

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<drosen0000@xxxxxxxxxx> wrote in message [news:eduu9o\\$1jaf\\$1@xxxxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:eduu9o$1jaf$1@xxxxxxxxxxxxxxxxxxxxxxxxxx)

What fitness value does being poisonous upon ingestion have to animal prey? I am not talking about poison that is actually applied to the predator by the prey biting, but to the passive ingestion of poison.

There does not seem to be any advantage unless there is a correlated social behaviour involved. Once eaten, the prey is dead and can't produce descendents anyway. If the predator dies, it does not bring the eaten prey individual back to life. If the predator's species dies, it still doesn't help the descendents of that prey animal since there are none. If the prey animal species is not social, the nonvenomous individuals are protected just as much by the death of the predator as the venomous individuals. The venomous individuals have to pay a metabolic penalty for producing the venom.

Some social behaviors that would make being poisonous to ingestion a benefit to other members of the prey's family (e.g., selfish gene scenarios). However, I never heard of a correlation between social behavior and being poisonous. Do venomous animals tend to be social? Does anyone know if poisonous frogs stick together in family groups?

These topics have been discussed here over the past few years. Use Google to search for the word 'aposematism' in this group. Also for "butterflies and mimicry".

There isn't always a 'metabolic cost' involved in becoming noxious. Google the web for 'monarch sequestration'.

There is a complex game theoretic dynamic between a population of prey, which presumably can display warning coloration or not, and independently be noxious or not, and a population of predators, which presumably can be cautious or can be bluff-callers.

If there are enough cautious predators, then displaying warning colors is a good idea for the prey. But it is harder to see the

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advantage of being noxious. You need some kind of kin selection or deme-level selection justification. You also need for there to be some bluff-callers among the predators. It is a very complex example of frequency-dependent selection in two species.