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Annotated Bibliography for Sequestration of Plant Compounds by Herbivores

Alibadi, A., Renwick, J.A. and Whitman, D.W. (2002) Sequestration of glucosinolates by harlequin bug *Murgantia histronica. J. Chem Ecol.* **28,** 1749-1762.

This study is typical of modern sequestration studies in that it looks at predator trials to ascertain that the herbivore is distasteful, and uses chemical analysis to test if the herbivore sequesters chemicals from its diet. They found that the bug does sequester glucosinolates and stores the chemical for extended periods.

Bernays, E.A. and Graham, M. (1988) On the evolution of host specificity in phytophagous arthropods. *Ecology* **69,** 886-892.

This paper first introduces the hypothesis that host plant specificity in herbivores is driven by predators.

Burghardt, F., Knuttel, H., Becker, M and Fielder, K. (2000) Flavonoid wing pigments increase attractiveness of female common blue (*Polyommatus icarus)* butterflies to mate searching males. *Naturwissenschaffen* **87,** 304-307.

This interesting paper shows that males spend longer investigating females with more sequestered flavonoids in their wings than females without flavonoids. They hypothesize that females with more flavonoids are more fertile because flavonoid rich petals have more protein than flavonoid free leaves.

Blum, Murray S. (1981) *Chemical Defenses of Arthropods.* Academic Press, New York

Chapter 17 (pages 411-457) in this book covers insects and toxic plants. This is the most detailed chemistry of the literature I found.

Bowers, M.D. (1988) Plant allelochemistry and mimicry. In *Novel Aspects of Insect-Plant Interactions.* (P. Barbosa and D. Letourneau, eds), pp. 273-311. John Wiley, New York.

This chapter is an overview of animals that mimic toxin sequestering animals. Bowers proposes a mimicry continuum as a model for mimicry.

Bowers, M. D. (1990) Recycling plant natural products for insect defense. In *Insect Defenses: Adaptive Mechanisms and Strategies of Prey and Predators* (D. L. Evans and J.O. Schmidt, eds), pp. 353-386. SUNY Press, New York.

This is a synthesis of the sequestration literature.

Camara, M.D. (1997) Predator responses to sequestered plant toxins in buckeye caterpillars: are tritrophic interactions locally variable? *J. Chem. Ecol.* **23,** 2093-2106.

This paper also uses predator trials and chemical analysis as proof of sequestration. The results are weakened by using a native butterfly and a non-native host plant.

Camara, M.D. (1997) Physiological mechanisms underlying the costs of chemical defence in *Junonia coenia* Huber (Nymphalidae): a gravimetric and quantitative analysis. *Evolutionary Ecology* **11,** 451-469.

This study looks at different genetic lines and their responses to toxins in their diets. Different strains were found to sequester different diets more efficiently, but not do as well on other diets.

Duffey, S. S. (1980) Sequestration of plant natural products by insects. *Ann Rev Entomol.* **25,** 447-77.
This overview of sequestration is cited in most sequestration articles. It covers all aspects of sequestration including chemicals and mechanisms.
Engler, H. S, Spencer, K, Gilbert, L. E. (2000) Preventing cyanide release from leaves. *Nature* **406,** 144
Heliconius sara is shown to be able metabolize cyanogens and sequester them as a chemical defense.
Fiedler, K. (1996) Host- plant relationships of lycaenid butterflies: large scale patterns, interactions with plant chemistry and mutualism with ants. *Entomologia Experimentalis et Applicata* **80,** 259-267.
This is an overview of blue butterflies. It mentions studies of sequestration of cycasin and flavonoids by blue butterflies.
Gleadow, R. M, and Woodrow, I. E. (2002) Constraints on effectiveness of cyanogenic glycosides in herbivore defense. *J. Chem Ecol.* **28,** 1301-1313.
This paper argues that although cyanogenic glycosides do not deter all predators, they are part of a plants defense. Cases of *Heliconius* and other butterflies sequestering cyanogenic glycosides are included.
McLain, D, and Shure, D. (1985) Host plant toxins and unpalatibility of *Neacoryphus bicrusis* (Hemiptera: Lygaeidae) *Ecological Entomology* **10,** 299-313.
This study includes predator trials to show that *Neacoryphus bicrusis* sequesters alkaloids from its host plant. It also included chemical analysis of host plants and herbivores.
Narhstedt, Adolf (1985) Cyanogenic compounds as protecting agents for organisms. *Pl. Syst. Evol.* **150,** 35-47.
A coevolutionary system of plants producing cyanogens, moths sequestering them and wasps sequestering the cyanogens from the moths is illustrated.
Pasteels, J. M, Rowell-Rahier, M, Raupp, M. J. Plant derived defense in Chrysomelid Beetles. . In *Novel Aspects of Insect-Plant Interactions.* (P. Barbosa and D. Letourneau, eds), pp. 273-311. John Wiley, New York.
This chapter is a review of chrysomelid beetle interaction with their host plants toxins. Topics include host plant variation and use of differing compounds by different developmental stages.
Pasteels, J. M and Rowell-Rahier, M (1991) Proximate and ultimate causes for host plant influence on chemical defense of leaf beetles (Coleoptera: Chrysomelidae) *Entomologia Generalis* **15,** 227-235.
This paper illustrates the interesting interaction of salicin and *Phratora vitellinae. Phratora vitellinae* sequesters salicin and metabolizes it into salicylaldehyde. This reaction gives off glucose, so the beetle gains a defensive secretion and a nutritional reward.