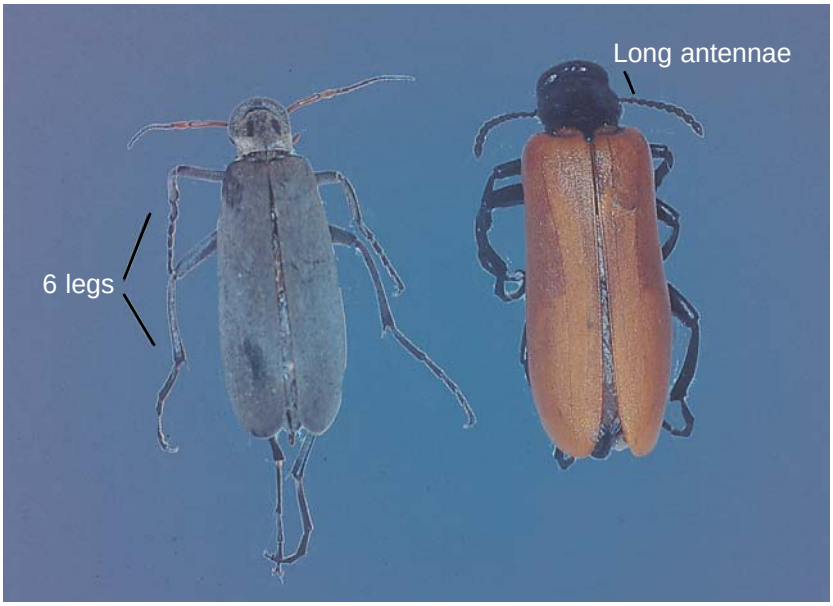
What's Eating You? Blister Beetles

Dirk M. Elston, MD

Blister beetles (Figure) are the source for commercial preparations of cantharidin. Many blister beetle species exist, and many have not been studied extensively. Much of what we know about blister beetles is extrapolated from studies of a few species. In some blister beetles, such as *Epicauta funebris*, cantharidin has been identified in all 10 life stages and accumulates during the first 5 larval stages.[1] When disturbed, the larvae exude cantharidin in a milky oral fluid rather than in the hemolymph that adult beetles discharge from their leg joints.[2] Adult male beetles may contain 10% cantharidin by body weight, but the females lose their larval reserves of this substance if kept in isolation. Consequently, female blister beetles must mate to avoid this potential hazard and retain their reserves of cantharidin and the protection it affords them. When allowed to mate, the female repeatedly acquires a small amount of cantharidin from the male as a precopulatory enticing agent.[2] During mating, the male transfers a larger quantity of cantharidin to the female. She, in turn, transfers the cantharidin to her eggs, rendering them resistant to predation.[3]



Blister beetles.

Blister beetles include members of the families Meloidae and Staphylinidae. Beetles from the family Meloidae are the most widely recognized, with species that cause contact blistering found worldwide.[4] Members of the family Oedemeridae are classified as "false" blister beetles but can cause contact blistering.[5]

Contact with blister beetles results in vesiculobullous skin reactions. In my experience, some beetles are attracted to light and have caused epidemics of bullous skin disease in hospital wards where the windows were left open. Histologic sections of the blisters demonstrate acantholysis in suprabasal keratinocytes. Because the profile of adhesion molecule loss in cantharidin blisters is similar to that seen in Darier disease, these blisters may be viable models for studying Darier disease.[6]

Blister beetles can have an economic impact, because farm animals, such as chickens, may die from blister beetle consumption. Penrith and Naude[7] report a case in which farmers' chickens died from erosive lesions in the gastrointestinal tract after consuming *Cyaneolytta* and *Cylindrothorax* species.

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Nairobi eye, or rove beetle blistering, is caused by contact with *Paederus eximius*, a species found in Northern Kenya.[8] This species has been described as a hazard for troops conducting training exercises in the area.[8]

In general, the best protection against blister beetle dermatitis is avoidance. If contact occurs, immediate washing of the affected area may be of some benefit.[8] After blistering has occurred, wound care with agents such as hydrocolloid gel dressings can be helpful.

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