

# Production and Predator-Induced Release of Volatile Defensive Chemicals by Plant Bug *Lygus hesperus*

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Is there an attractive sex pheromone consisting of one or more volatile chemicals in *Lygus hesperus*?

Are there differences in volatiles between males and females?

What function do the volatiles play?

Are there difference in *Lygus* volatiles during the spring, summer, fall, or winter?

Blackmer, J.L., Rodriguez-Saona, C., Byers, J.A., Shope, K.L., and Smith, J.P. 2004. Behavioral response of *Lygus hesperus* to conspecifics and headspace volatiles of alfalfa in a Y-tube olfactometer. *Journal of Chemical Ecology* 30:1547-1564.



**Blackmer, J.L., Byers, J.A., and Rodriguez-Saona, C. 2008. Evaluation of color traps for monitoring *Lygus* spp.: Design, placement, height, time of day, and non-target effects. *Crop Protection* 27:171-181.**

**Blackmer, J.L., and Byers, J.A. 2009. *Lygus* spp. (Heteroptera: Miridae) host-plant interactions with *Lesquerella fendleri* (Brassicaceae), a new crop in the arid southwest. *Environmental Entomology* 38:159-167.**




**Flowering *Lesquerella fendleri***



*Lygus lineolaris*



*Lygus hesperus*



Red harvester ant,  
*Pogonomyrmex rugosus*,  
a possible predator of  
Lygus bugs



Native fire ant (*Solenopsis xyloni*)  
tending cotton aphids (*Aphis gossypii*)



GCMS

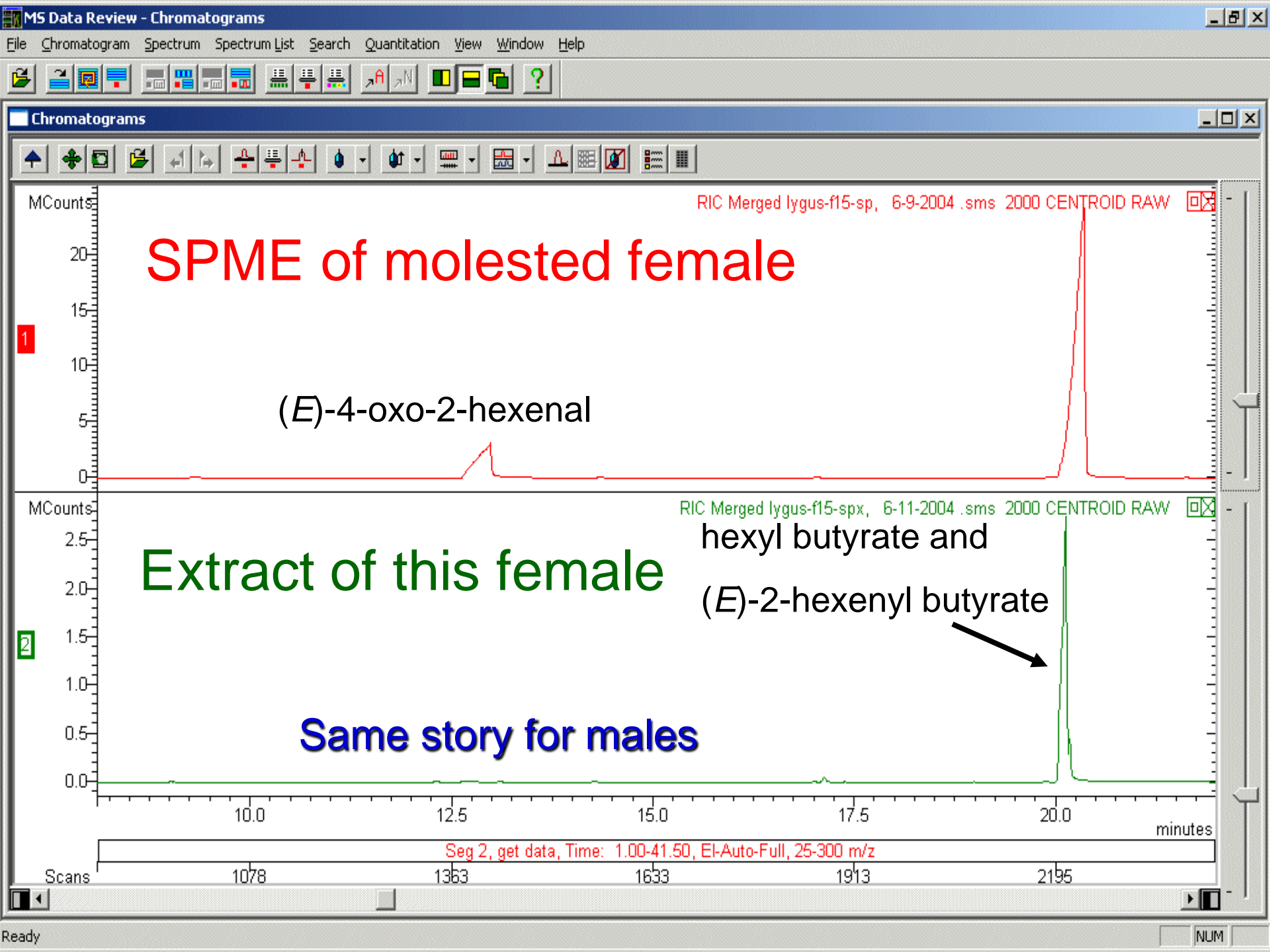
VARIAN CP-3800

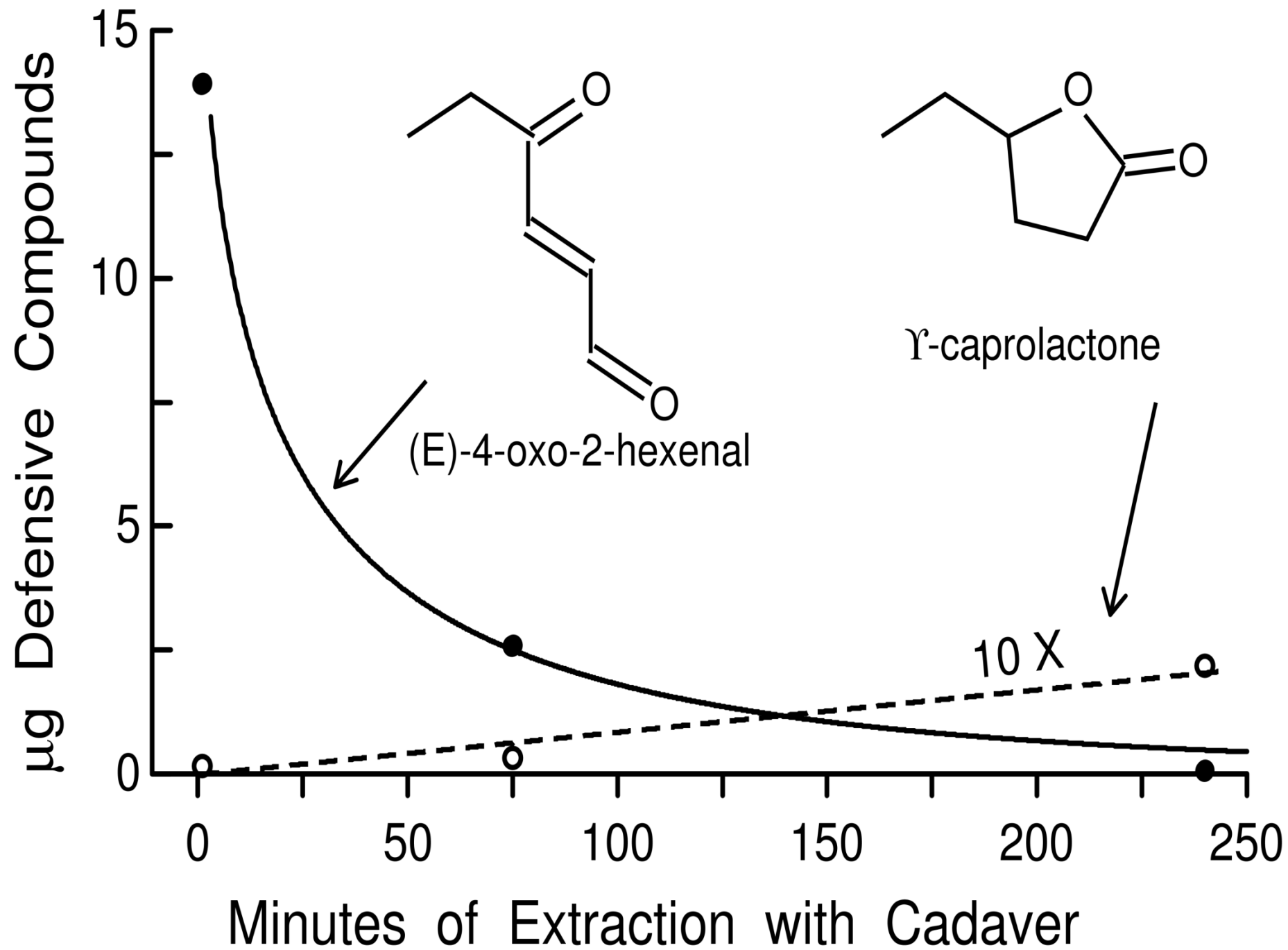
VARIAN Saturn 2000



SPME

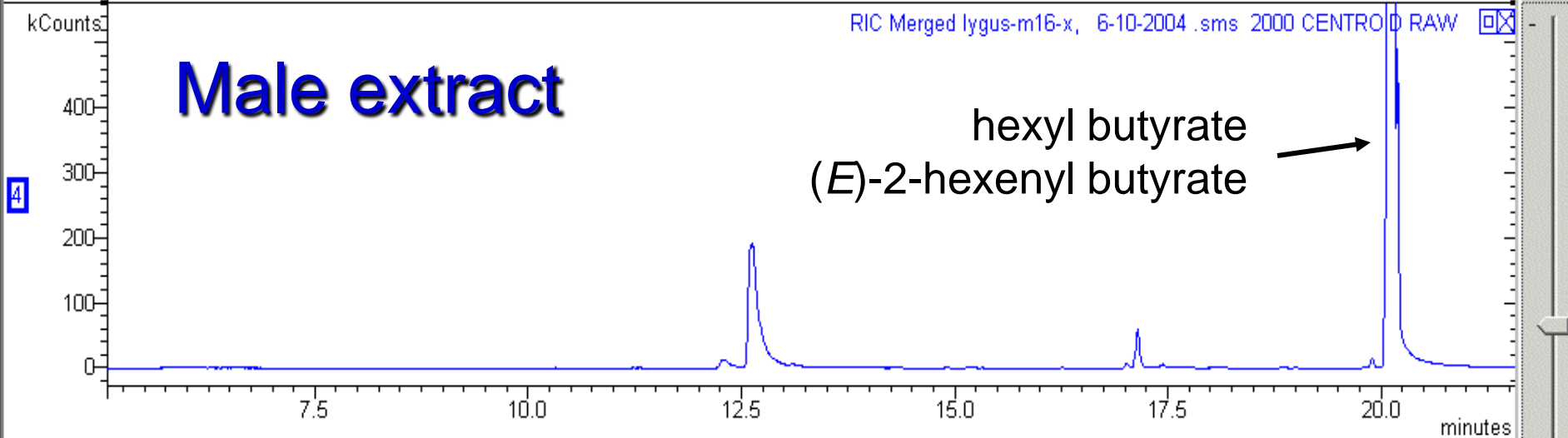
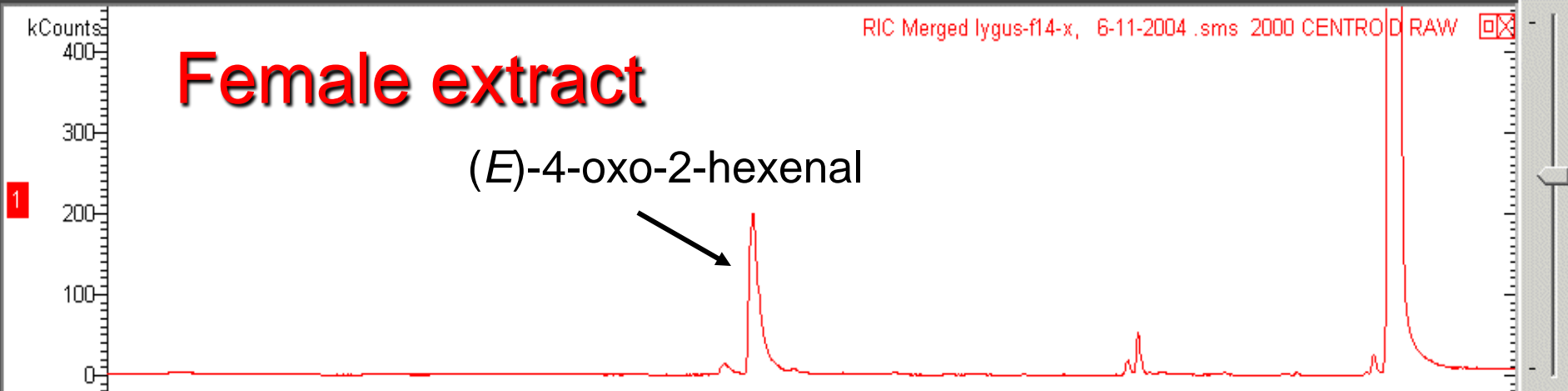




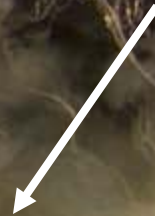




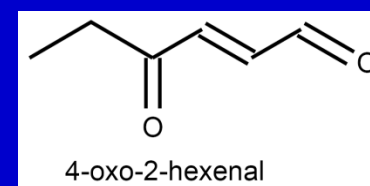
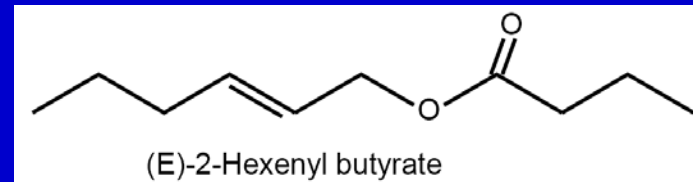
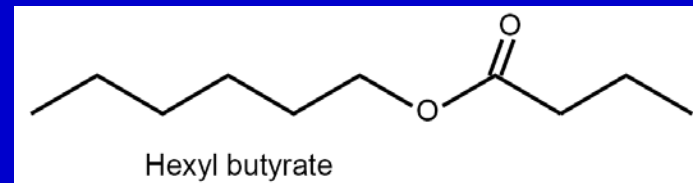
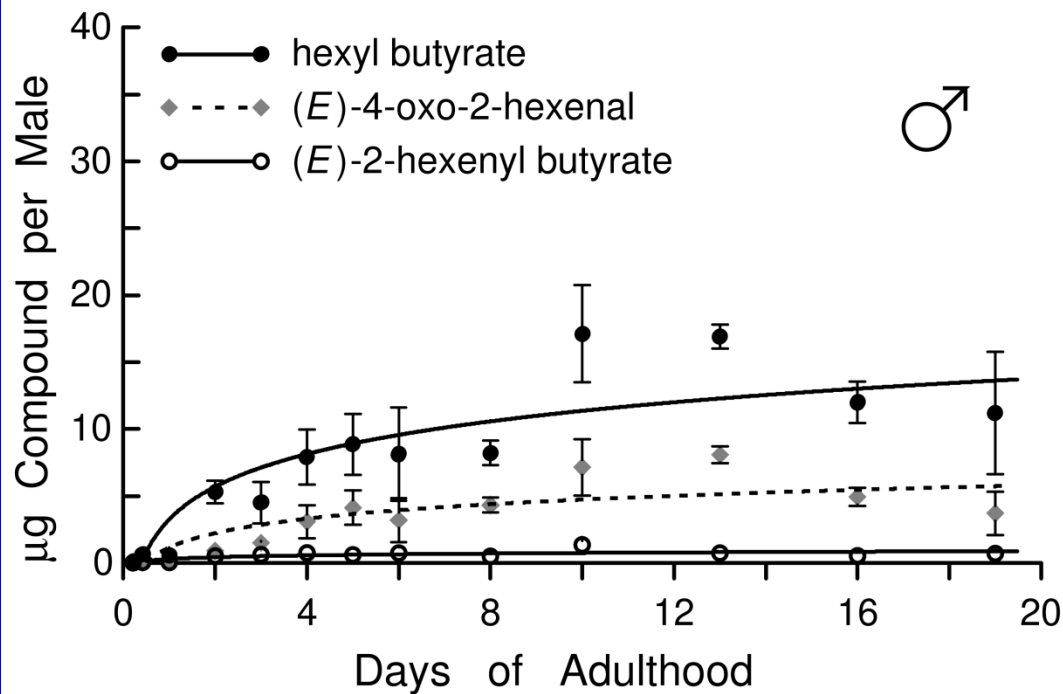
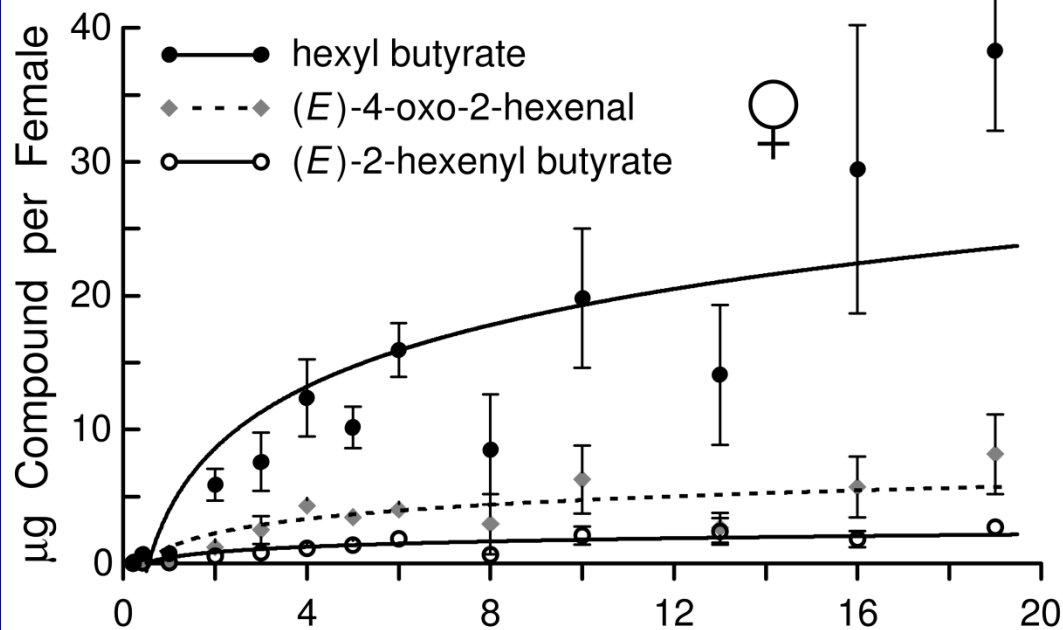
Chromatograms



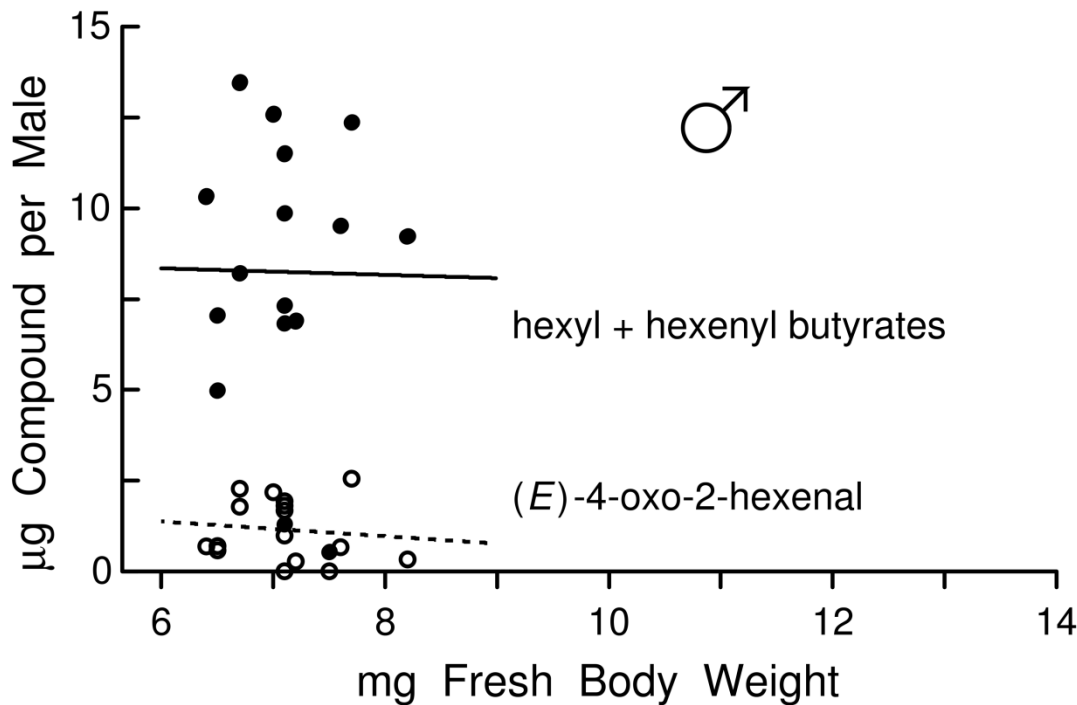
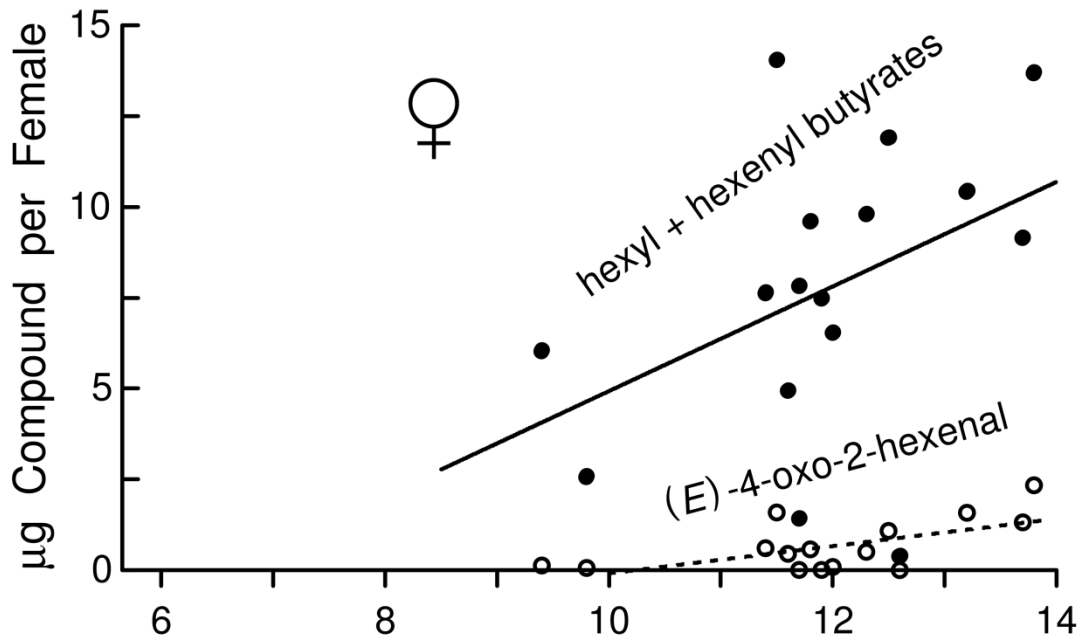
Metathoracic gland



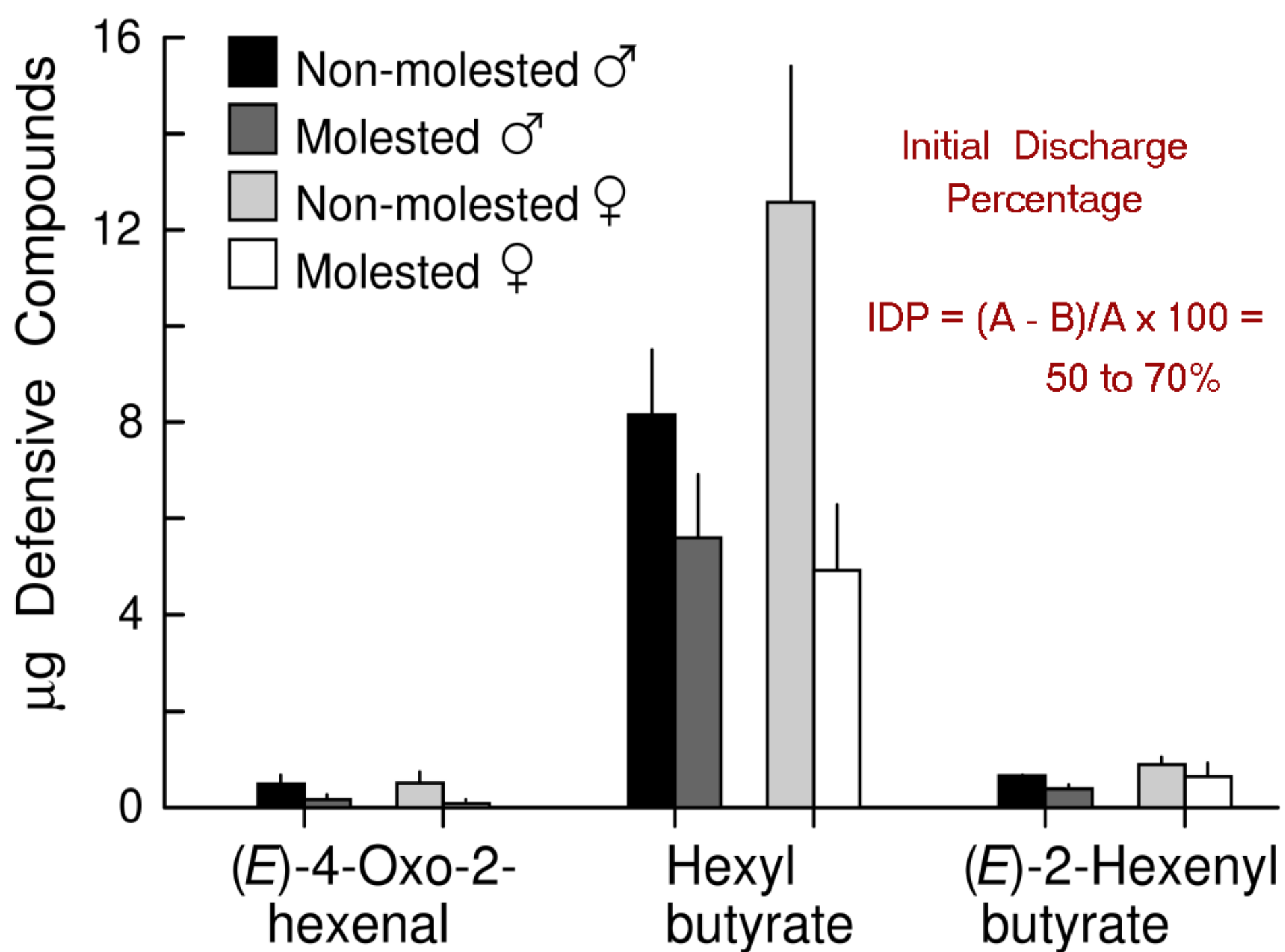
head



Buildup of female and male defensive volatiles



Cost of  
defensive  
volatile  
production?



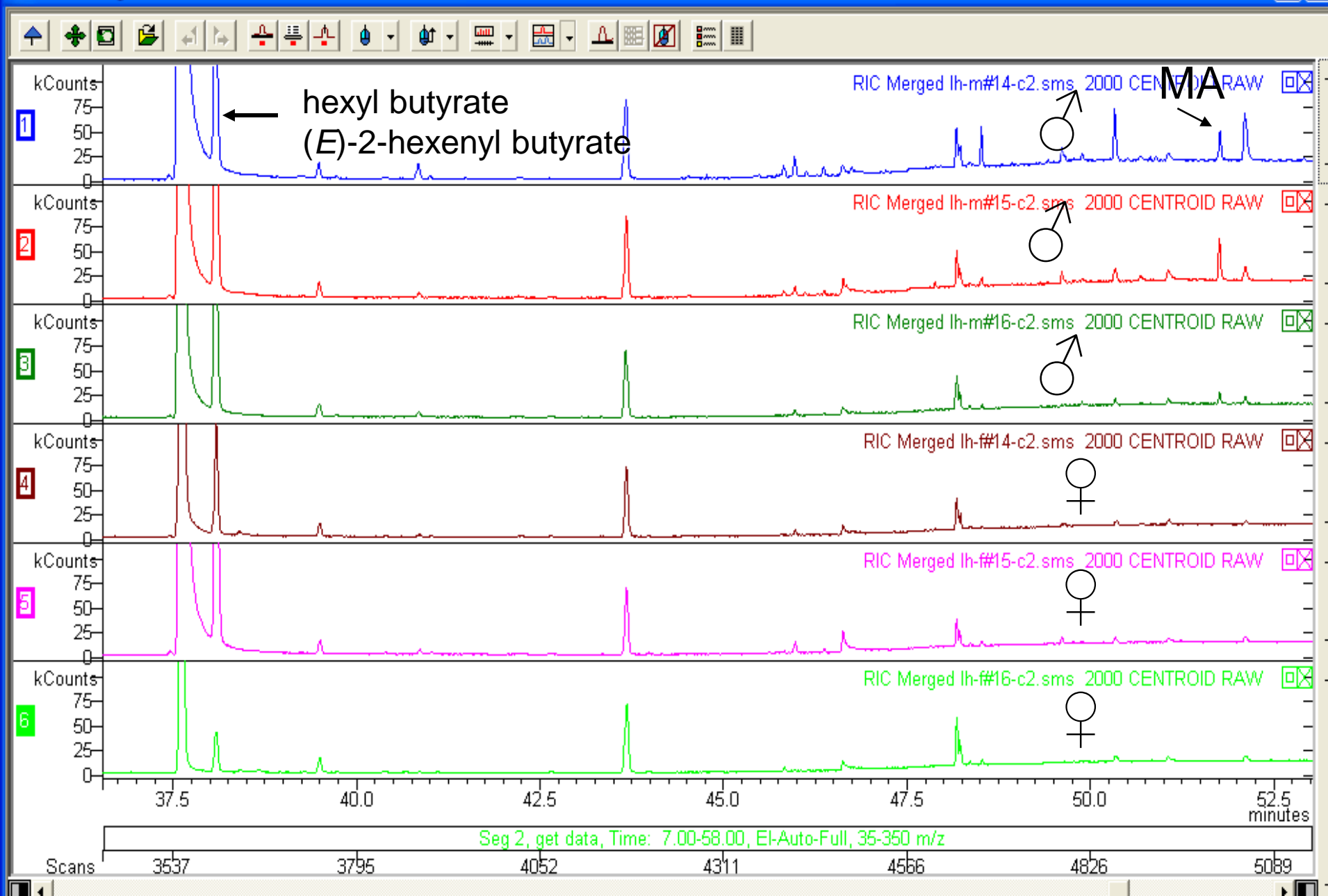


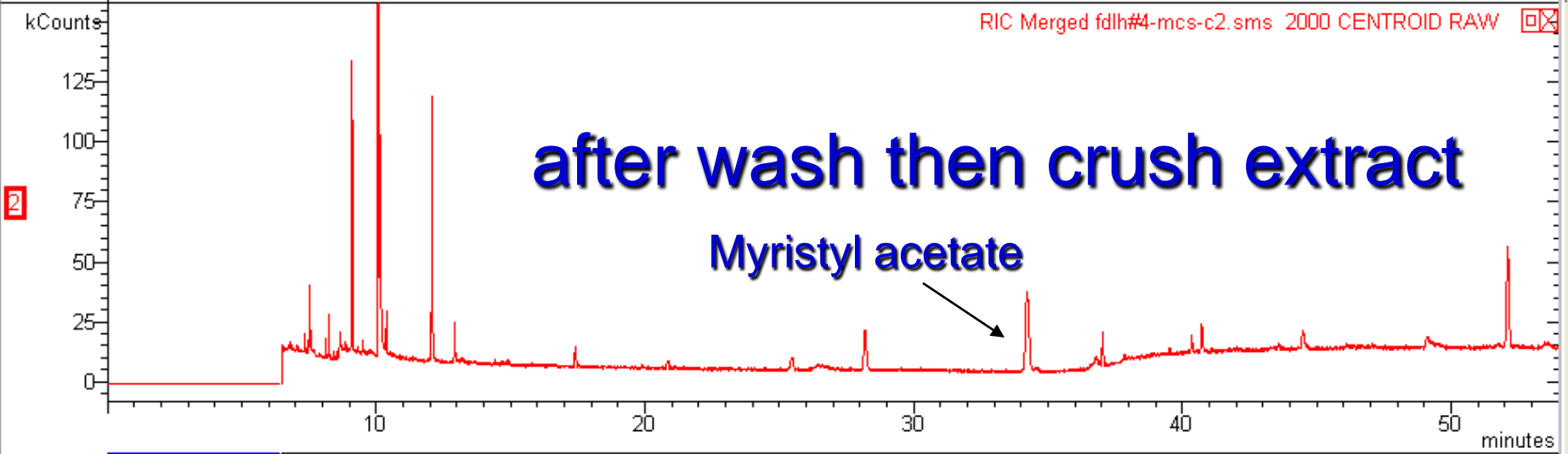
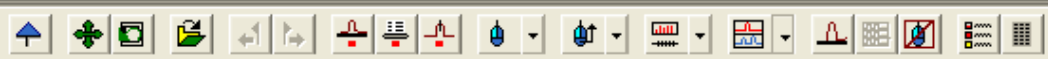
Nymphs have no defensive  
compounds

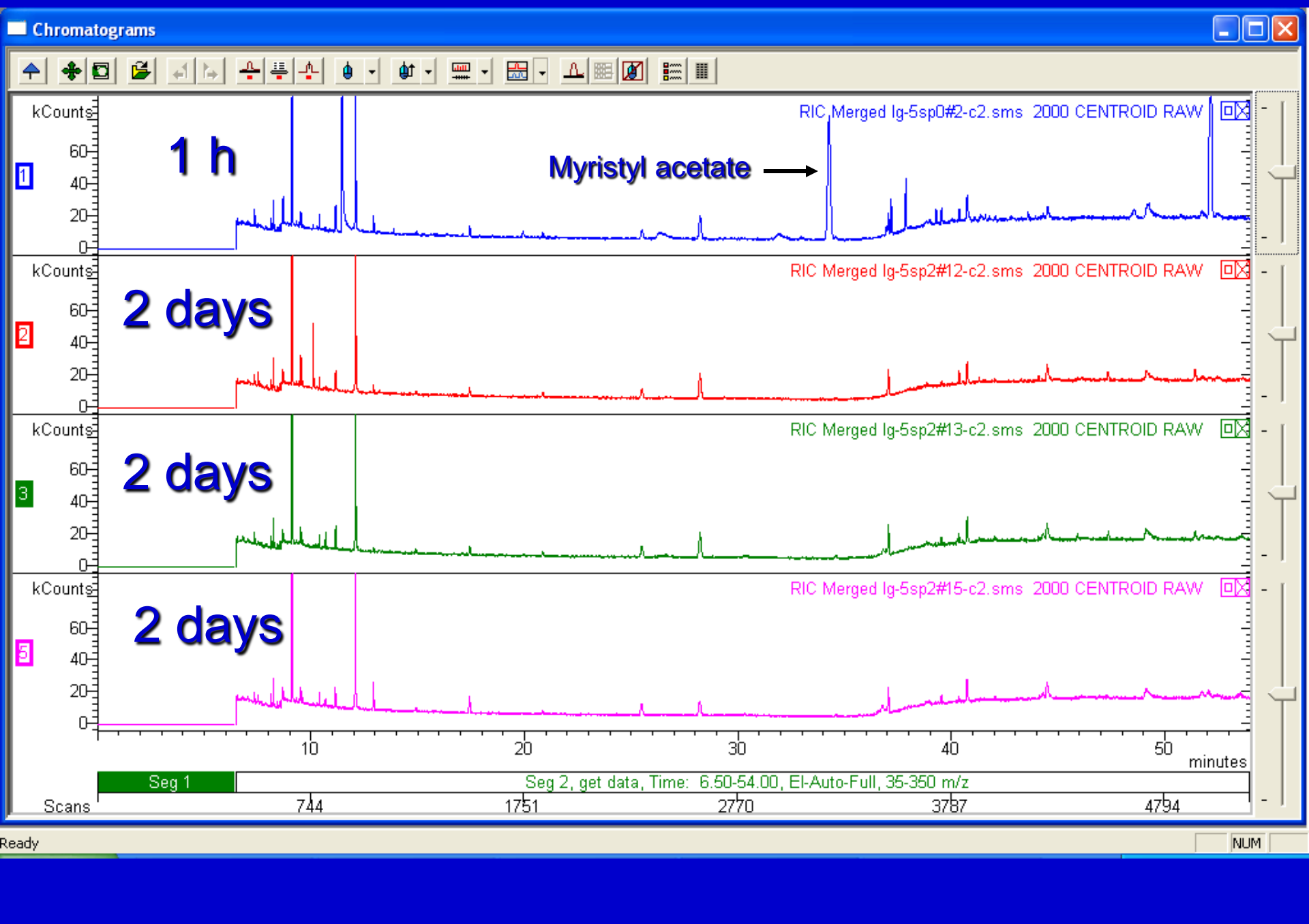


# Crab spider not deterred











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