

# Exocrine Secretions of Wheel Bugs (Heteroptera: Reduviidae: *Arilus* spp.): Clarification and Chemistry

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Wheel bugs (Heteroptera: Reduviidae: Harpactorinae: *Arilus*) are general predators, the females of which have reddish-orange subrectal glands (SGs) that are eversible like the osmeteria in some caterpillars. The rancid odor of *Arilus* and other reduviids actually comes from Brindley's glands, which in the North (*A. cristatus*) and South (*A. carinatus*) American wheel bugs studied emit similar blends of 2-methylpropanoic, butanoic, 3-methylbutanoic, and 2-methylbutanoic acids. The *Arilus* SG secretions studied here are absolutely species-specific. The volatile SG components of *A. carinatus* include (E)-2-octenal, (E)-2-nonenal, (E)-2-decenal, (E,E)-2,4-nonadienal, (E)-2-undecenal, hexanoic acid, 4-oxo-nonanal, (E,E)-2,4-decadienal, (E,Z)-2,4- or (Z,E)-2,4-decadienal, and 4-oxo-(E)-2-nonenal; whereas in *A. cristatus* the SG secretion contains -pinene, limonene, terpinolene, terpinen-4-ol, thymol methyl ether, -terpineol, bornyl acetate, methyl eugenol, -caryophyllene, caryophyllene oxide, and farnesol. *Arilus* spp. SG secretions may be sex pheromones, but verification of this hypothesis requires further testing.

*Key words:* *Arilus*, *Halyomorpha*, Pheromone