

The scent of love: Decomposition and male sex pheromones

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Young virgin female hide beetles (*Dermestes maculatus*) are attracted to cadavers by a combination of cadaver odor and male sex pheromones. Credit: Dr. Heiko Bellmann

Young virgin female hide beetles (*Dermestes maculatus*) are attracted to cadavers by a combination of cadaver odour and male sex pheromones, finds a new study published in BioMed Central's open access journal *Frontiers in Zoology*. Neither cadaver scent, nor male sex pheromones alone, caught the fancy of the fussy females. This predilection ensures that there is both a waiting male and food for her larvae, and optimises the chances of reproductive success.

Decomposition of a vertebrate cadaver is a sequential buffet for many carrion species including insects. Different species have evolved



preferences for different stages during decomposition. The first to arrive are blow flies and flesh flies, whose larvae feed on the still moist tissue, followed by clown and rove beetles, who eat the larvae. Adult skin/hide beetles will start to arrive and feed on the remaining skin and ligaments, but will not breed until advanced decay has set in.

By the time the cadaver has been reduced to bones, hair, and dried out skin only the larvae of hide beetles, as well as scarabs and checkered beetles remain. The life cycle and sequence of arrival of these flies and beetles is so predictable that it can be used by <u>forensic scientists</u> to estimate time of death.

A team of researchers, led by Christian von Hoermann from Ulm University, Germany, filled olfactometers with different volatile scents and recorded which scents female hide beetles were attracted to. The scents used were pig cadaver, collected at different stages of decay, male pheromone gland extract, synthetic pheromones, and a control, pentane (an <u>organic solvent</u> which was used to extract the other <u>odours</u>).

The females ignored both the control and <u>synthetic pheromone</u>. In fact they pretty much ignored everything apart from the odour of piglet in the dry remains stage, as long as it was enhanced by male pheromones.

Christian von Hoermann explained, "Although cadaver odour alone is not sufficient to attract two to three week-old virgin female hide beetles, it is enough to attract newly emerged males." Release of pheromones by these males appears to signal the cadaver as an appropriate site for feeding, mating and egg laying. Evolution seems to have ensured that hide beetle females only respond to a mate (or a food source for their larvae) when the other is also present, so that they can optimise the chances of their offspring's survival.

More information: The attraction of virgin female hide beetles



(Dermestes maculatus) to cadavers by a combination of decomposition odour and male sex pheromones, Christian von Hoermann, Joachim Ruther and Manfred Ayasse, *Frontiers in Zoology* (in press)

Provided by BioMed Central

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