



## Inducible defenses: The relevance of chemical alarm cues in *Daphnia*

Laforsch, Christian, Laura Beccara, Ralph Tollrian

Limnol. Oceanogr., 51(3), 2006, 1466-1472 | DOI: 10.4319/lo.2006.51.3.1466

**ABSTRACT:** Many aquatic organisms use chemical cues to recognize predators and to activate inducible defenses. In zooplankton, most of these cues are thought to be kairomones released by specific predators. However, in several other organisms, e.g., fish and amphibians, alarm signals from conspecifics also provide reliable cues. We tested whether alarm substances also act as chemical cues in *Daphnia* and assessed their relevance compared with predator kairomones. Water-borne cues from macerated conspecifics altered morphology in all *Daphnia* species tested (*Daphnia cucullata*, *Daphnia longicephala*, and *Daphnia lumholtzi*). However, kairomones released by feeding predators had distinctly stronger effects. In *D. cucullata*, we tested for the relevance of predator diet and found that the increase in relative helmet length was most pronounced when the predator was fed with conspecifics instead of heterospecifics. Cross-species experiments with alarm substances also revealed that *D. cucullata* is more sensitive to infochemicals from macerated conspecifics than to chemical cues from *D. magna*. Unspecific alarm cues together with cues released by predators consuming prey may form a blend of chemicals that indicates predation risk and activates inducible defenses in nature.

### Article Links

[Download Full-text PDF](#)

[Return to Table of Contents](#)

### Please Note

Articles in L&O appear in PDF format. Open access articles may be freely downloaded by anyone. Other articles are available for download to subscribers only, or may be purchased for \$10 per article. All L&O articles are moved into Open Access after three years.

