Metabolomics of *Caenorhabditis elegans*

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**Introduction**

*C. elegans* is a free-living soil-dwelling nematode that develops through four larval stages to 1-mm long adults in about 3.5 days. We used NMR, HPLC, and GC-MS to analyze the compounds released by the worms. Covariance NMR and COLMAR analysis were used to identify 8 molecules semi-automatically through mixture analysis and database matching (1-4). This work was published in the Journal of Chemical Ecology (5).

**Experimental, Results and Discussion**

Worms were grown to defined developmental stages, transferred to water, and incubated for 1 hour to collect worm exudates. We analyzed these with NMR, GC-MS, and HPLC. 36 metabolites were identified in this study. We also tested worm exudates for their ability to inhibit bacterial quorum sensing and found that the most hydrophobic fraction was active. We are currently pursuing the identification of this activity.

**Conclusions**

*C. elegans* live in a very complex environment with many microbes that can serve as food or pathogen. Very little is known about the chemical interactions that regulate those interactions.

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**References**