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## Trophic fate of inorganic and methyl-mercury in a macrophyte-chironomid food chain

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### Highlights

- Hg was transferred from cell wall and intracellular fractions of *E. nuttallii* to chironomids
- In chironomids, MMHg was in the cytosol, while IHg in the insoluble fraction
- MMHg demethylation was concomitant with IHg reallocation to the insoluble fraction
- Macrophytes are a new identified dietary source of Hg for benthic larvae

### Abstract

Dietary transfer of mercury (Hg) is central for its effects on higher trophic animals, nonetheless, its driving parameters and characteristics are not well understood. Here we measured Hg species transfer (uptake) from the macrophyte *Elodea nuttallii* -mimicking tissues incorporation in sediments after decay- to *Chironomus riparius*.

Methyl-Hg (MMHg) was more transferable than inorganic Hg (IHg) from plant's intracellular and cell wall compartments. After 10-d-long exposure, MMHg was predominantly found in MMHg form in the cytosolic compartment (S) of chironomids, while IHg showed similar concentrations in S and insoluble debris (P) compartments. After cessation of Hg species exposure (depuration), only MMHg resulted in a bioaccumulation

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