



Wood biofilm as a food resource for stream detritivores

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ABSTRACT: Published assimilation efficiencies indicate that leaf detritus is a more nutritious food for stream invertebrates than wood. Some studies, however, suggest that wood and wood biofilms (epixylon) may be an important but overlooked resource. We measured assimilation efficiencies of three detritivores for leaves and epixylon and compared attributes of grazed versus ungrazed wood epixylon to assess its use by detritivores. *Pycnopsyche gentilis* (Trichoptera), *Tipula abdominalis* (Diptera), and *Tallaperla* spp. (Plecoptera) assimilated epixylon more efficiently (26-36%) than leaf detritus (9-17%). Epixylon assimilation efficiencies were *T. abdominalis* > *Tallaperla* spp. > *P. gentilis*. Grazed wood had significantly lower microbial respiration rates, bacteria densities and biomass, fungal and chlorophyll a biomass, and biofilm ash-free dry mass than ungrazed wood, indicating that detritivores fed on epixylon. Detritivores ingested leaves at a higher rate (0.09-0.47 g g⁻¹ d⁻¹) than epixylon (0.04-0.07 g g⁻¹ d⁻¹). Assimilation rates, which incorporate both assimilation efficiency and ingestion rate, however, indicated that *Tallaperla* spp. and *T. abdominalis* were better able to use epixylon than leaves, whereas *P. gentilis* was more efficient at using leaves. Wood biofilm is readily ingested and assimilated by some stream detritivores and may serve as an important but overlooked food resource in stream food webs.

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