

## Macrobenthos colonisation associated with native and invasive leaf litter decomposition



Lake and reservoir ecosystems are regarded as heterotrophic detritus-based habitats which are dependent on both autochthonous and allochthonous organic matter for the majority of energy inputs. In particular, allochthonous detritus is in particular important for the trophic dynamics of microbial organisms, macroinvertebrates and benthic plants in freshwaters. Here, we assess macroinvertebrate colonisation, and quantify decomposition rates, of leaf litter from species of native and invasive plants in a small agricultural reservoir. Native fig *Ficus sycomorus* and silver cluster-leaf *Terminalia sericea* were compared to invasive tickberry *Lantana camara* and guava *Psidium guajava*, whereby macroinvertebrate colonisation was assessed over time. Leaf treatments had a significant, group-specific effect on abundances and composition among focal macroinvertebrates. Invasive leaves reduced Physidae and Oligochaeta abundances, yet Ostracoda were significantly more abundant in the presence of invasive *P. guajava*. Chironomidae relative abundances increased under invasive *L. camara* treatments, whilst differences among leaf treatment effects on

Coenagrionidae abundances were not statistically clear. In turn, macroinvertebrate diversity did not differ significantly among plant treatment groups. The decomposition rate of the leaf litter demonstrated differences among the species, following a decreasing order of *L. camara* > *F. sycomorus* > *T. sericea* > *P. guajava*. The study results highlight that leaf litter species identity among invasive and native plants plays an important role in the colonisation of macroinvertebrates in small reservoirs, thereby differentially supporting aquatic environments and food webs. However, differences were not uniform across invader-native groupings. Nonetheless, certain invasive leaf litter decomposes faster than native litter, with possible implications for broader nutrient dynamics and subsequent community composition.

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**Obtenir le document :** EDP Sciences

**Mots clés :** Macroinvertebrates, allochthonous, leaf litter decomposition, native, invasive, Macroinvertebrates, allochthone, décomposition de litière, indigène, invasion

**Thème (issu du Text Mining) :** MILIEU NATUREL

**Date :** 2020-07-16

**Format :** text/xml

**Source :** <https://doi.org/10.1051/kmae/2020025>

**Langue :** Anglais

**Télécharger les documents :** <https://www.kmae-journal.org/10.1051/kmae/2020025/pdf>

**Permalien :** <https://www.documentation.eauetbiodiversite.fr/notice/macrobenthos-colonisation-associated-with-native-and-invasive-leaf-litter-decomposition0>

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