

Algemene informatie

Titel (Nl.)	Fluxen in bosbodempercolaat onder 6 verschillende boomsoorten op een metaalverontreinigde bodem
Title (En.)	Forest floor leachate fluxes under six different tree species on a metal contaminated site
Auteur	Van Nevel <i>et al.</i>
Instituut	Universiteit Gent, Departement Bos- en Waterbeheer
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Trefwoorden (Nl.)	Bosbodempercolaat, boomsoorten, zware metalen, opgeloste organische koolstof, basische kationen, fytostabilisatie
Keywords (En.)	Forest floor leachate, tree species, trace metals, DOC, base cations, phytostabilization

Voor deze studie werd onderzoek in Waaltjesbos (Bosland) uitgevoerd op en rond eiken (*Quercus robur* en *petraea*), Ruwe berk (*Betula pendula*), Valse acacia (*Robinia pseudoacacia*), Ratelpopulier (*Populus tremula*), Grove den (*Pinus sylvestris*) en Douglasspar (*Pseudotsuga menziessi*) 12 jaar na hun aanplant.

Samenvatting (Nederlands)

De studie bestudeert van 6 verschillende boomsoorten, groeiend op een metaalverontreinigde bodem, het effect op hoeveelheden van Cd en Zn, opgeloste organische koolstof (DOC), H⁺ en basische kationen in hun bosbodempercolaten. De uitloging van Cd en Zn onder Ratelpopulier was minder hoog dan verwacht gezien de hoge contaminatie van de bladstrooisel. Andere processen/activiteiten spelen hier dus nog mee. De resultaten impliceren overigens dat Grove den en eik, met hoge gehalten opgeloste organische koolstof en H⁺-hoeveelheden en lagere aantallen basische kationen in hun bosbodempercolaten, de mobilisatie van metalen in de bodem versterken en dus een potentieel risico inhouden voor de ondergrondse verspreiding van metalen.

Summary (English)

Trees play an important role in the biogeochemical cycling of metals, although the influence of different tree species on the mobilization of metals is not yet clear. This study examined effects of six tree species on fluxes of Cd, Zn, DOC, H⁺ and base cations in forest floor leachates on a metal polluted site in Belgium. Forest floor leachates were sampled with zero-tension lysimeters in a 12 year-old post-agricultural forest on a sandy soil. The tree species included were silver birch (*Betula pendula*), oak (*Quercus robur* and *Q. petraea*), black locust (*Robinia pseudoacacia*), aspen (*Populus tremula*), Scots pine (*Pinus sylvestris*) and Douglas fir (*Pseudotsuga menziesii*). We show that total Cd fluxes in forest floor leachate under aspen were slightly higher than those in the other species' leachates, yet the relative differences between the species were considerably smaller when looking at dissolved Cd fluxes. The latter was probably caused by extremely low H⁺ amounts leaching from aspen's forest floor. No tree species effect was found for Zn leachate fluxes. We expected higher metal leachate fluxes under aspen as its leaf litter was significantly contaminated with Cd and Zn. We propose that the low amounts of Cd and Zn leaching under aspen's forest floor were possibly caused by high activity of soil biota, for example burrowing earthworms. Furthermore, our results reveal that Scots pine and oak were characterized by high H⁺ and DOC fluxes as well as low base cation fluxes in their forest floor leachates, implying that those species might enhance metal mobilization in the soil profile and thus bear a potential risk for belowground metal dispersion.