**Dissolved organic carbon and nitrogen leaching in single and mixed-species landscapes in southern Texas**

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Leaching of nitrogen (N), orthophosphate-P (P), and dissolved organic carbon (DOC) from soil represents a break in their respective nutrient cycles. An understanding of nutrient removal from soil through leaching in amenity landscapes may lead to landscape management practices that are least damaging to surface and ground water. Annual mean DOC, dissolved organic nitrogen (DON), ammonium, nitrate, P, and bicarbonate concentrations and fluxes were determined in leachate from landscapes planted with different urban vegetation types. The experiment was conducted at two sites with different climates and irrigation water chemistry. Vegetation comprised St. Augustinegrass [*Stenotaphrum secundatum* (Walt.) Kutze.] alone, Red Oak [*Quercus shumardii* Buck.] alone, St. Augustinegrass plus Red Oak, native grasses [*Muhlenbergia capillaries* (Lam.) Trin. and *Schizachyrium scoparium* (Michx.) Nash], native grasses plus Red Oak, and Bermudagrass [*Cynodon dactylon* x *C. transvaalensis*, Burtt-Davy *'Tifway'*] in College Station (CS) and San Antonio (SA) Texas, on a Rader fine sandy loam (mixed, semiactive, thermic Aquic Paleustalfs). Lysimeters (1136 L) were placed in-ground in a randomized complete block design with three blocks. Leachate was collected every two to four weeks from May 2007 through April 2008. Vegetative treatments had a significant effect on leachate nitrate and DON concentrations at CS, but no effect at SA. The vegetative treatments had a significant effect on leachate fluxes of DOC, ammonium, and P at SA, but no effect in CS. In the St. Augustinegrass alone treatment, fluxes of DOC, DON, bicarbonate, ammonium, and nitrate were larger in CS than SA. The relationship between DOC and bicarbonate flux in both CS and SA was strong and significant ($R^2 = 0.96$ and $0.92$ respectively). Climate and irrigation water chemistry had a significant effect on some leachate chemistry, but this effect varied with the different vegetative species.

**Publications:**


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