

Endothall absorption and translocation by curly-leaved and sago pondweed

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ABSTRACT

Curly-leaved pondweed (*Potamogeton crispus* L.) (CLP) and sago pondweed [*Stuckenia pectinata* (L.) Börner] (SGP) are perennial, submersed aquatic species in the Potamogetonaceae family that produce perennating structures. CLP is an introduced species that infests water bodies across the United States, while SGP is a native species that becomes problematic in irrigation canals. These plant species are often managed using endothall (7-oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid), but they respond differently to the herbicide even though they belong to the same plant family. The objective of this research was to determine if endothall behaved differently enough in these two species to explain the differential plant response. SGP plants were treated with a high endothall concentration (3 mg L⁻¹) and CLP plants with a high and a low endothall concentration, 3 and 0.75 mg L⁻¹, respectively. Endothall absorption and translocation was determined over a 192-h time course. Endothall absorption by CLP and SGP was slow; however, total accumulation was four to seven times higher than the concentration found in the water column. Endothall shoot-to-root translocation was limited in both species. CLP translocated 3.0% ± 0.23 and 3.6% ± 0.45 at 3 and 0.75 mg L⁻¹ endothall, respectively, while SGP translocated 1.1% ± 0.02 when exposed to 3 mg L⁻¹ endothall. Translocation to the mature tuber or turion that produced the plant was even more limited. The results of this study support the previously research that endothall can be translocated to the roots of aquatic plants; however, there was no evidence to explain differential response between SGP and CLP based on endothall behavior.

Key words: herbicide uptake, *Potamogeton crispus*, radio-labeled, *Stuckenia pectinata*.

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