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"A Review of The Aquatic Environmental Fate of Triclopyr and its Major Metabolites".

Petty, D.G., Getsinger, K.D., and Woodburn, K.B.

ABSTRACT

The triethylamine salt formulation of triclopyr was recently registered for use in aquatic sites by the US Environmental Protection Agency for selective control of invasive aquatic and wetland weed species. Research shows that this herbicide and its metabolites have an environmentally compatible degradation scenario, an excellent toxicological profile, and the ability to selectively control a variety of exotic weed species, making it a valuable tool for restoring and managing aquatic ecosystems. Laboratory studies show that photolytic processes rapidly degrade triclopyr, indicating a major role in dissipation from aquatic sites. However, subsequent field studies indicate that photolysis has a more limited role in the aquatic degradation, likely due to sunlight attenuation in natural waters, and show that metabolic degradation processes assume a more important role. Laboratory investigations show aerobic and anaerobic degradation in hydrosoils is a slower process, and hydrolysis plays a minor role in triclopyr degradation. Field studies conducted in California, Georgia, Minnesota, Missouri, Texas and Washington have shown triclopyr and its TCP and TMP metabolites dissipated from water with half-lives ranging from 0.5 to 7.5, 4.2 to 10.0, and 4.0 to 8.8 days, respectively. Sediment dissipation half-lives ranged from 2.7 to 13.3 days for the same compounds. Half-lives for fish and shell fish ranged from 1.6 to 15.1 days. Results from laboratory and field studies indicate dissipation rates of the parent triclopyr and its metabolites are similar and relatively rapid.

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