

Chlorpyrifos Degradation in Soils with Different Treatment Regimes Within Nzoia River Drainage Basin, Kenya

## **Abstract**

Two organic amendments, filter mud compost and *Tithonia diversifolia* leaves generated within a sugarcane growing area were used to enhance the degradation of chlorpyrifos in soil. Filter mud compost and *T. diversifolia* leaves significantly enhanced degradation of chlorpyrifos in soils ( $p < 0.05$ ) with DT50 values of 21 and 24 days, respectively. Furthermore, field degradation of chlorpyrifos in soil with prior exposure to chlorpyrifos was significantly enhanced ( $p = 0.034$ ) with DT50 of 21 days compared to 30 days in soil with no previous exposure. Degradation of chlorpyrifos in sterile and non-sterile soils were significantly different ( $p = 0.023$ ) with DT50 values of 161 and 27 days, respectively. Results show enhanced degradation of chlorpyrifos in organically amended soils and soils with prior exposure to the pesticide. These amendments show promise in a continuing effort to reduce chlorpyrifos concentrations in soils.

Authors.

[Gershom Kyalo Mutua](#)<sup>1</sup>, [Anastasiah Njoki Ngigi](#), [Zachary Moranga Getenga](#)