

Residual Phytotoxicity Effects of Paraquat, Glyphosate and Glufosinate-Ammonium Herbicides in Soils from Field-Treated Plots

Abstract

Soil residual phytotoxicity of commonly used herbicides in plantation crops in Malaysia were investigated through bioassay. Paraquat (GramoxoneR) and glufosinate-ammonium (BastaR) at 200, 400, 600 and 800 g a.i. ha⁻¹, and glyphosate (Round-upR) at 400, 800, 1200 and 1600 g a.i. ha⁻¹ were applied to field plots of 5 x 20 m². Cucumber and corn were used in the bioassay to test the residual effect of herbicides in the soil of the treated plots. Soil, sampled at 1 day after treatment (DAT) and until 2 weeks (WAT) later, did not affect the seed germination and seedling development of cucumber and corn. Recommended rates, paraquat (400-600 g a.i. ha⁻¹), glufosinate-ammonium (500 g a.i. ha⁻¹) and glyphosate (1000 g a.i. ha⁻¹) applied to field to control weeds in oil palm plantation, therefore leave no phytotoxic residue in the soil.

Keyword: Bioassay, Herbicide residues, Paraquat, Glyphosate, Glufosinate-ammonium, Field-treated plots