ABSTRACT

Weed control is a crucial aspect of increasing agricultural productivity. Spiny amaranth (*Amaranthus spinosus*), a broadleaf weed, is known for its rapid growth, strong adaptability, and high competitiveness against cultivated crops. This study aimed to evaluate the effectiveness of clomazone and oxyfluorfen herbicides, both individually and in combination, in suppressing the growth of A. spinosus. The experiment was conducted using a Completely Randomized Design (CRD) with eight treatment levels and three replications. Parameters observed included weed mortality percentage, plant height, number of leaves, stem diameter, and dry weight. Results showed that the highest efficacy was achieved with a combination dose of 1500 g/ha clomazone and 1250 g/ha oxyfluorfen, which significantly reduced weed biomass and growth indicators. Clomazone, a systemic herbicide, was more effective in early growth stages, while oxyfluorfen, a contact herbicide, complemented the suppression of established weeds. The combination of both herbicides provided a synergistic effect and was more effective than single applications. This study suggests that using clomazone and oxyfluorfen in combination can be an effective strategy for controlling broadleaf weeds like A. spinosus in tropical agricultural systems.

Keywords: chemical suppression, selective treatment, biomass reduction, plant interference, crop competition.