

HERBICIDAL PROPERTIES OF *Lantana camara* AND *Mikania micrantha* INDIVIDUALLY AND IN COMBINATION AGAINST *Brassica juncea*

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Synthetic herbicides are widely used for weed control, but their intensive use poses ecological and environmental hazards. The invasive alien plants (IAPs) *Lantana camara* and *Mikania micrantha* cause considerable damage to agricultural ecosystems. Allelochemicals of these plants can suppress the growth of nearby plants, prompting investigation into their herbicidal potential for eco-friendly, plant-based herbicides. This study aimed to determine the inhibitory effects of *L. camara* and *M. micrantha* aqueous leaf extracts, individually and in combination, on seed germination and early seedling growth of *Brassica juncea* using a Petri plate assay. Mature leaves of the two IAPs were collected, washed, dried at room temperature until a constant weight, and powdered. Aqueous leaf extracts (20%) were prepared from dried leaf powder, followed by a dilution series of 5%, 2.5%, 1.25%, 0.625% and 0.3%. Seed germination and seedling growth of *B. juncea* were tested against various concentrations of *L. camara* and *M. micrantha* extracts, both individually and in combination, by placing 25 seeds in each Petri plate on moistened tissue paper with 5 mL of the respective extract, a positive control (glufosinate ammonium and 2-methyl-4-chlorophenoxyacetic acid), or negative control (distilled water), with four replicates per treatment. Results showed that each leaf extract caused significant ($p \leq 0.05$) inhibitory effects on seed germination and growth parameters (lengths and dry weight of shoots and roots) of *B. juncea* seedlings. Inhibitory effects increased with rising concentrations of the extracts. The combined aqueous leaf extracts exerted an additive inhibitory effect on seed germination, shoot length, root length, dry shoot weight and dry root weight in 84.4%, 93.7%, 98.4%, 65.6% and 93.7% of combinations, respectively. The results indicate that *L. camara* and *M. micrantha* aqueous leaf extracts have the potential for development as plant-based herbicides.

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