Influence of *Chromolaena odorata* leaf extracts on seed germination, seedling growth and growth performance of *Abelmoschus esculentus* L. (Okra) and *Vigna unguiculata* L.(Bushita)

V W Rathnayake and R M C S Ratnayake

Department of Botany, University of Kelaniya, Kelaniya

Chromolaena odorata was introduced as an ornamental plant but presently it is an invasive species to Sri Lanka. The present study was aimed to study the potential of using its leaf extract as a liquid fertilizer for Okra (*Abelmoschus esculentus*) cultivar "Haritha" and Bushita (*Vigna unguiculata*) cultivar "BS1". Aqueous leaf extracts (25, 50, 75, 100 gL^{-1}) of *C. odorata*was tested for seed germination and seedling growth inPetri dishes (four replicates for each treatment containing 20 seeds each of above crops) and seed trays (eight replicates for each treatment and sand as the growth medium) by adding 10 mL each test extract and distilled water used as the control. Growth and yield performance of Bushita and Okra were studied with the same concentrations of *C. odorata* extracts, with five replicates in a field with completely randomized block design and by adding 300 mL of the extracts every other day. Growth parameters of Bushita and Okra were recorded 60 days after seed sowing. Results were statistically analyzed by MINITAB R.16. The laboratory experiment results showed that seed germination, root and shoot lengths of both Okra and Bushita were significantly ($p<0.05$) reduced by *C. odorata* leaf extracts compared to the control. With increasing concentrations of *C. odorata* extracts, rates of inhibition of seed germination were proportionally increased. Addition of 75 gL^{-1}*C. odorata* leaf extracts on germinated seedlings showed significantly ($p<0.05$) higher growth improvement in the mean leaf area ($369.81^a \pm 5.35$), number of flowers ($11^a \pm 0.5$), leaves ($21^a \pm 0.4$) and fresh weight of fruit ($28.4^a \pm 0.17$)in Okra. However in Bushita, only the 50 gL^{-1} treatment has showed higher total fresh fruit weights ($158.5^a \pm 2.66$) and leaf area ($264.44^a \pm 13.97$) than the control ($119.6^c \pm 3.99$) and ($189.26^c \pm 11.13$) respectively (One way ANOVA, $p<0.05$) and no significant effects was recorded in the other measured growth parameters in the other treatments, compared to the control. Although *C. odorata* leaf extract has less promising effects on Bushita, leaf extracts of *C. odorata* (75 gL^{-1}treatment) can be successfully used to enhance the growth and yield performance of Okra.