

## EFFICACY OF SELECTED PLANT EXTRACTS ON THE CONTROL OF LEAF CURL IN CHILLI (*Capsicum annuum* L.)

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### Abstract

Chilli (*Capsicum annuum* L.) is one of the economically important spice crops and is widely cultivated in Sri Lanka. Chilli leaf curl is a major viral disease that affects chilli plants and causes significant yield losses in Sri Lanka. As chilli leaf curl is an insect-borne disease, chemical insecticides are widely used to control this disease. The negative effects of insecticides on human health and the environment prompted the search for safer and more sustainable alternatives. The use of botanicals is one of the effective eco-friendly approaches to manage this disease. In this study, the effectiveness of botanicals prepared from onion (*Allium cepa*) bulbs, neem (*Azadirachta indica*) leaves, and tobacco (*Nicotiana tabacum*) leaves against chilli leaf curl was investigated in the yala season. Treatments included three organic botanical extracts prepared from onion bulbs, neem leaves, and tobacco leaves arranged in a Randomized Complete Block Design with five replicates along with the control. Treatment solutions were prepared in a 1:5 ratios by mixing with water and applied as a foliar spray. Data on percent disease incidence, plant height, number of leaves per plant, number of branches per plant, and number of flowers per plant were recorded six weeks after application. The collected data were analyzed using two-way analysis of variance (ANOVA) to determine the significance of treatment effects. The overall results showed that all botanical extracts significantly ( $p < 0.05$ ) reduced chilli leaf curl symptoms compared to the control. Among extracts, neem leaf extract and tobacco leaf extract showed the highest reduction in disease incidence in chilli plants. Meanwhile, the botanicals compounds had no influence on the growth and yield parameters as there were no significant ( $p > 0.05$ ) differences in plant height, number of leaves per plant, number of branches per plant and number of flowers per plant. Therefore, the results suggest that neem leaf extract and tobacco leaf extract have the potential to be effective alternatives to conventional chemical pesticides for controlling chilli leaf curl.

**Keywords:** Botanicals, Chilli leaf curl, Disease incidence, Neem leaves, Tobacco leaves

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