B-61 Allelopathic nature of *Cynodon dactylon* and *Cyperus rotundus* on the growth of chillie, tomato and rice

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Cynodon dactylon and *Cyperus rotundus* are 2 major weed species found in chillie, tomato and rice fields in Sri Lanka. It has been reported that these 2 weeds may reduce growth of several crop species by allelopathic mechanisms.

The objective of this study was to examine the influence of these weeds on the growth of chillie, tomato and rice.

The weeds were grown separately in pots with drainage holes at the bottom. Uninfested pots were considered as control. Pots were watered to exceed and the leachate was collected. The 3 crops were also grown in pots and irrigated with the leachates taken from the 2 weeds and uninfested controls. Following attributes were made on the 3 crops at flowering time: plant height, number of leaves, leaf length, leaf width, stem diameter, fresh weight yield of roots and shoots.

Highly significant differences were observed ($p < 0.001$) for fresh weight yield of root/shoot ratio, number of leaves, leaf length, leaf width and fresh weight yield of roots. Crops irrigated with leachates of 2 weeds had significantly higher root/shoot ratios ($p < 0.05$) than those irrigated with uninfested controls.

As a result, the root/shoot ratio was negatively correlated with shoot dry weights, it would seem that greater allocation of resources to the root system not only reduced the leaf area, and hence the photosynthetic capacity of the shoot system also increased the respiratory rate, so the crop growth rate was reduced. The results suggest that allelopathy may be involved in the reduced crop growth.