
Effects of Phyllodes Extracts of *Acacia auriculiformis* A. Cunn. ex Benth. on Selected Weeds and Crop Species; Insight Towards a Bioherbicide Development

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Acacia auriculiformis is an introduced/non-native plant species has caused deleterious effects on biodiversity; become one of the most noxious plant species in Sri Lanka. The study was aimed to investigate the phytotoxic effects of phyllodes of *A. auriculiformis* on two weed species; *Tridax procumbens* (dicot) and *Echinochloa glabrescens* (monocot) and two crop species; *Oryza sativa* (AT-56) and *Vigna radiata*. Pot experiments were carried-out in triplicates, utilizing ambient water (experiment-1) and boiled water (experiment-2) extracts of phyllodes of *A. auriculiformis* to determine its effects; both concentration (0-control, 0.5%, 1% and 5% w/v) and the age (extracts were kept for 1, 7, 14, 21 and 28-days, in experiment-1) on germination (12-healthy seeds per replicate) and growth (5-seedlings per replicate) of selected weeds and crop species over two weeks. Generalized Linear Model (GLZ) and two-way ANOVA tests were used to analyze germination and growth data, respectively. In experiment-1; significant reduction in germination percentage ($p < 0.05$) was observed in *E. glabrescens* (concentration-0.5%, 1%, 5% w/v for all ages) and *T. procumbens* (concentration-1%, 5% w/v, except at 1-day old extracts). Shoot and root dry-weights of *E. glabrescens* were significantly reduced ($p < 0.05$) at 5% concentration of 1-day and 7-days old extracts. However, no significant effect of age of extract was observed. In experiment-2; significantly lower germination percentages of *T. procumbens* and *E. glabrescens* were observed, compared to the control ($p < 0.05$) at all concentrations. Shoot and root length of *E. glabrescens* and *V. radiata* (at 5% w/v) and dry-weights of all species (at all concentrations) were significantly reduced ($p < 0.05$) compared to controls. It was concluded that 5% w/v water extract is the effective concentration in reducing germination and growth of selected weed and crop species. Further, this concentration is more effective on dicots than monocots. Current study revealed that the phytotoxicity of phyllodes of *A. auriculiformis* could be used to produce bioherbicide which could pave the way for an ethnobotanical management of *A. auriculiformis*.

Keywords: *Acacia auriculiformis*, Bioherbicide, Germination, Growth, Ethnobotanical management