

Allelopathic effect of aqueous extracts from Purple nut sedge (*Cyperus rotundus*) on germination of agriculture crops

Amirthalingam.V., Sivachandiran.S.

Abstract: A study was carried out in the Department of Agronomy, Faculty of Agriculture, University of Jaffna during September to December 2005 to find the allelopathic effect of different concentration of aqueous extract of *Cyperus rotundus* leaves and root on germination of crop such as green gram, paddy, tomato and capsicum. Aqueous extracts were prepared at the concentration of 5%, 7.5%, 10% and 20% (w/v) and distilled water was used as control. The experiment was conducted in Complete Randomized Design (CRD) with three replicates in the laboratory of Department of Agronomy. The germination percentages were recorded and data was analysed using descriptive statistics and ANOVA. The results revealed that the aqueous extracts caused significant inhibitory effects on germination, radicle elongation and the effects are high with increase in concentration. The inhibitory pattern is not uniform in all crops. The effect was higher in tomato and capsicum than paddy and green gram. The inhibitory effect was much pronounced in radicle elongation rather than germination percentages in green gram and paddy. Inhibitory effect of root extract is much higher than the leaf extract on germination percentages. The interaction effects between different parts and different concentration found to be statistically significant. This study clearly showed that there were differences in the inhibitory pattern among extracts from different parts at different concentration. Further, there were differences observed in the inhibitory pattern of extracts taken during dry season and rainy season. The different degree of inhibitory effect indicates that these have either different quantities of inhibitory allelochemicals, or that the nature of allelochemicals may differ with season and plant parts. This study clearly highlighted that there is a high inhibitory effect by *Cyperus rotundus* on cultivated crops. Anyhow further studies are required to confirm which allelochemicals are responsible for these inhibitory effects (P value :0.005)