Can the allelopathic effect of *Mikania micrantha* be effectively used for weed control in wet seeded rice in Sri Lanka?

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Mikania micrantha is one of well established and distributed invasive alien species in Sri Lanka. Consumption of an invasive alien species is an important strategy to manage them. Weed management is a critical issue for rice farmers in Sri Lanka. Though herbicides are the easiest and most popular method of weed control among Sri Lankan farmers, it is not eco-friendly at the long run. So, it is necessary to look for alternative methods of weed control. With this objective, the present study investigated whether the allelopathic effect of *Mikania micrantha* could be used in weed control of wet seeded rice. A field experiment was conducted using Randomized Complete Block Design (RCBD) in the *2014 Yala* season at the Rice Research and Development Institute, Batalagoda, to evaluate the performance of five treatments, namely: *soil incorporation of Mikania micrantha* cuttings at the rate of 10 t/ha 7 days before sowing; soil incorporation of *M. micrantha* cuttings (10 t/ha) 2 days before sowing; application of a hot water extract from *M. micrantha* (10 t/ha) at sowing day; application of a water extract from *M. micrantha* (10 t/ha) at sowing day; and application of an extract of *M. micrantha* fermented for 6 days (10 t/ha), 3 days after sowing, with comparison to control plots (no *M.mcrantha* treatment). As the Department of Agriculture has recommended the rate of 10 t/ha in the case of green manure application for paddy; this rate was selected for application. The plot size was 10.5 m^2 and plots were separated by small bunds. Seeds of *Bg 300* were broad casted at a seed rate of 100 kg/ha. Weed dry weight at 06 days after sowing, and final grain yields were measured. The initial weed floral composition was recorded at the experimental site. All other cultural management practices were done according to the recommendation of the Department of Agriculture. Data were analyzed using ANOVA with the SAS software package. No significant difference ($P > 0.05$) among treatments was observed both in the case of weed dry weights and final grain yields. Treatments were comparable with controls of both in the case of weed dry weights and final grain yields. *Paspalum distichum* weed species count was significantly higher in un-treated control whereas *Mikania micrantha* treated plots had zero counts of that. Thus it is concluded that the applications of *M. micrantha* treatments at the tested rates and forms were not effective in their allelopathic effect in controlling the majority of rice weeds below the economic threshold level. However *Paspalum distichum* species was affected significantly by the *M.micrantha* treatments. Further investigations on increased rates of *M.micrantha* treatments and other extractions techniques are needed.

Key Words : Allelopathy, green manure, wet seeded rice.