



P 03 Preliminary observations on the allelopathic effect of some traditional rice cultivars on weed density under field condition and germination of barnyard grass (*Echinochloa crusgalli* L)

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With the objectives of understanding allelopathic effect of 68 traditional rice cultivars, field and laboratory experiments were carried out in 2011 Yala season at Faculty of Agriculture. Rice cultivars were transplanted according to complete randomized block design with four replicates. Each replicate consisted of three rows of rice plants and data were collected from the middle row. After three months of transplanting, plant height (cm) and number of tillers/plant, were evaluated in traditional rice cultivars. Dry matter weight of weeds in 1 .Oft² area around the rice plant was evaluated in three replicates of each traditional rice cultivars. There was a significant difference in average dry matter weight of weeds in 1 .Oft² area around the plant of rice cultivar but no correlations in between plant height of traditional rice cultivar or tiller number/plant of them with average dry matter weight of weeds in 1 .Oft² area around rice plant emphasizing nonsignificant effect of rice plant morphology in weed density. Further experiments were carried out to see the allelopathic effect of these rice cultivars on germination of Barnyard grass (*Echinochloa crusgalli*) seeds. In one experiment three soil samples were collected from the soil contacted with root system of the middle row rice plants and 20 *Echinochloa crusgalli* seeds were sown in soil samples. In other experiment, three replicates of 5g-leaf samples from individual traditional rice cultivar were crushed and mixed with non-rice grown soil samples. Seeds of *Echinochloa crusgalli* were sown in each soil sample and germination percentage was counted one month after the seeding. According statistical analysis, there were significant differences in germination percentage of *Echinochloa crusgalli* in both soil types while germination percentage was significantly lower in soil samples collected from rice root zone. Furthermore, there was a strong correlation in between germination percentage of *Echinochloa crusgalli* in two types of soil samples.

Keywords: allelopathic effect, traditional rice, *Echinochloa crusgalli*