

B-49: Effectiveness of acidulated mica powder and chips as a multi nutrient rock fertilizer on rice cultivation

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Effectiveness of low application rates of acidulated pegmatitic phlogopite mica powder and chips were tested in a greenhouse experiment as a multi nutrient fertilizer. As a basal dressing, 50 kg/ha of mica powder (T2) and mica chips (T3) were applied. The rice cultivar (BG 94-1) was grown on LYP soils at Kalutara, RBL soils at Digana and LHG soils at Anuradapura. The recommended dose of 35 kg/ha Muriate of Potash (MOP) was added as control (T1). An additional treatment with magnesium 1.8 kg/ha was added using $Mg(NO_3)_2$ with MOP(T4). This amount was equivalent to the soluble magnesium content in 50 kg mica powder.

For all soils, non-significant increase of 1.17% and decrease of 8.39% and 9.79% in tillering were obtained with T2, Mg-K treatments (T4) and T3 respectively against T1. Non-significant, panicle increases of 0.87%, 0.56% and a 5.72% decrease were obtained with T2, T3 and Mg-K application against T1 respectively.

Yield results showed non-significant increases of 3.77% for acidulated mica powder and 1.49% for Mg-K application and a decrease of 10.26% for mica chips against T1. But a significant yield increase for T2 application was obtained compared to the T3.

Results indicate that there was no significant difference between the T1 and the T2 according to tiller, panicle and yield even mica powder supplied 6.89% of potassum available in 35 kg MOP (17.4 kg potassum) in all soils types. Low nutrient releasing ability of mica chips may affect non-significant changes in panicle and yield within a season. Conformation of magnesium together with micro nutrients present in T2 increase in tillers, panicles and yield, compared to T1. Results suggest provision of Mg with other micro nutrients may achieve success for rice cultivation.