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Bio-fortification of rice grain: A case study in Sarawak using calcium silicate and organic fertilizer

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Rice is an important staple for more than half of the world's population. Hence, increasing yield and nutritional quality of the crop to complement current strategies to reduce malnutrition are crucial. This study had evaluated the potential of calcium silicate and organic fertilizer as yield enhancers and bio-fortification fertilizers in rice. Results obtained show no difference in yield and other vegetative and reproductive parameters among all the treatments. There was also no difference in term of nutritional contents in the rice grain except for calcium and silicon. Soil-applied 1.36 t/ha of calcium silicate increases dietary silicon content in the grain to about 30% higher than the 1.76 t/ha of calcium silicate and 2.16 t/ha of organic fertilizer treatments but was comparable to the control. However, calcium silicate treated plants had about 30% lower calcium content in their grains than the control. The results from this study are in contradictory with the previous reports on the beneficial effects of calcium silicate application in rice and various other crops. Since calcium silicate is quite expensive, other sources of calcium and silicon, rate and time of applications may be explored.

Biography

Maclin Dayod is currently the Head of Crop Breeding and Miscellaneous Crops Section in the Research Division of the Department of Agriculture Sarawak, Malaysia. Since 2012, his research work focuses on breeding for good eating quality in *Oryza sativa* L and varietal improvement in *Solanum lasiocarpum* Dunal. He is also responsible for the conservation and propagation of various crops which include pepper and other spices, herbs and medicinal plants. He had also researched on the impact of calcium on plant water channels (aquaporins) and uptake for his PhD and the physiological changes in barley due to waterlogging for his Master's degree.

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