

Rice growth improvement and zinc bio-fortification through lime and zinc application in acid sulphate soils

ABSTRACT

A two years field study was conducted to explain the effect of Zn and lime application on morphological characteristics, rice yield and yield components, and more broadly, grains biofortification (Zn and protein content (CP), and amino acid profiles). The lime and Zn interaction increased grains and straw yield more than two times (6.64 ton ha⁻¹) compared to the control (3.20 ton ha⁻¹). The maximum increase in the Zn content of grain, white rice and bran was obtained about 30% in whole grain, 42% in bran and 56% in white rice. Furthermore, CP increased by about 8% in bran, 12.3% in whole grain, and 27% in white rice compared to control. Also, the Zn and lime application and their interaction were significantly increased the amino acids, especially essential parts.

Keyword: Zinc; Acid sulphate soils; Rice; Lime; Amino acids; Biofortification