

Effects of nitrification inhibitor with organic manure and urea on protein and mineral contents in grain of *Oryza sativa* cv. MR219 cultivated in acid sulphate soil

ABSTRACT

Several approaches to improve grain nutritive values involve in increasing seed accumulation of protein and micronutrients in rice. Therefore, a study was conducted to select a suitable combination of dicyandiamide (DCD) with organic manure (OM) and urea to improve protein and mineral content in rice grain of MR219. The protein (9.07-12.50%) and Ca, Mg, Zn, Cu, Fe and Mn concentrations increased from 1.92 to 21.05, 3.56 to 18.25, 2.25 to 20.22, 9.14 to 25.66, 3.34 to 27.20 and 5.17 to 23.86%, respectively due to the application of DCD with urea and OM. Moreover, the highest content of protein in grain was obtained for the application of DCD with urea and oil palm compost (OPC). Iron and Mn contents were also highest for DCD with urea and OPC, but Ca, Mg, Zn and Cu contents were highest for DCD with urea and poultry dung (PD) and kept similarity with DCD with urea and OPC.

Keyword: Acid sulphate soil; Dicyandiamide; MR219 rice; Nitrification inhibitor; Organic manure