MICHAELIS CONSTANTS OF UREASE IN ALLUVIAL ALKALINE SOILS UNDER DIFFERENT CROPPING SYSTEMS

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ABSTRACT

Studies to determine the Michaelis constants (K_m) and maximum reaction velocity (V_{max}) for urease activity in five soils (S-1, S-2, S-3, S-4, S-5) representing upland (S-2, S-3, S-4) and lowland (S-1, S-5) cropping systems, were conducted under laboratory conditions. The upland soils were cropped to maize, cotton and sorghum and the lowland soils were cropped to flooded rice. The Michaelis constants (K_m) determined in upland soils ranged from 0.69 to 1.5 x 10^{-3}M and those in lowland soils ranged from 5.4 to 8.7 x 10^{-3}M. The V_{max} values ranged from 230 to 500 ug urea N hydrolysed g^{-1} soil h^{-1} in upland soils and from 130 to 150 ug urea N hydrolysed g^{-1} soil h^{-1} in lowland soils. The results showed that Michaelis constant (K_m) could be a sensitive indicator to measure and compare the urease activity of different soils.