

Residual Affects of Humic Matter from Sub-Bituminous in Binding Aluminium at Oxisol to Increase Production of Upland Rice

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Abstract : The objective of this research were: a) using low-rank coal (subbituminous) as main humate material sources because this material will not be anthracite, and cannot using to be an energy sources b) to examine residual effects of humic matter from subbituminous which was combined with P fertilizers to adsorp Al and Fe metal, improving soil fertility, and increasing P fertilizing efficiency and Oxisol productivity. Therefore, optimalization crop productivity of upland rice can be achieved. The experiment was designed using a 3 x 4 factorial with 3 replications in randomly groups design. The 1st factor was 3 ways incubating humate material with P-fertilizer, which are: I1 = Incubation of humate material 1 week, then incubation P-fertilizers 1 week; I2 = Incubation of humate materials and P fertilizers directly into the soil for 2 weeks; and I3 = humate material and P fertilizer mixed for 1 week, then incubation to the soil for 1 week. The 2nd factor was residual effects of humate material and P-fertilizer combination which are 4 doses H1 = 400 ppm (0.8 Mg/ha) + 100% R; H2 = 400 ppm + 75% R; H3 = 800 ppm (1.6 Mg/ha) + 100% R.; and H4 = 800 ppm + 75% R. The 2nd year research results showed that the best treatment was founded residue effect of 800 ppm humate material and 100% R P-fertilizer doses in I3 way incubation that is equal to 6.19 t ha⁻¹ upland rice yield. However, this result is almost the same as residual effects of 800 ppm humate material + 75% R P-fertilizer doses and upland rice yield the 1st year. It was concluded that addition of humate material can given the efficiency of P-fertilizer using up to 25% until the 2nd season planted.

Keywords : humate materials, P-fertilizer, subbituminous, upland rice

Conference Title : ICAB 2015 : International Conference on Agriculture and Biotechnology

Conference Location : Jeddah, Saudi Arabia

Conference Dates : January 26-27, 2015