

Effect of humic acid application on growth of upland rice

ABSTRACT

Malaysia produces about 3.0 t ha⁻¹ of rice annually which can only cater to around 65% of the national domestic requirement. Malaysia still imports 35% of rice to meet the local demand. In addition, the price of chemical fertilizers is increasing yearly. Thus, measures are taken to increase rice productivity with the lower usage of chemical fertilizers. A study was conducted in an insect-proof house located at the Faculty of Sustainable Agriculture, Universiti Malaysia Sabah, Malaysia to investigate the effect of humic acid (HA) on Tadong upland rice growth performances and the yield on replacing the use of chemical fertilizer (NPK). This study consisted of T1 positive control (NPK 60:30:30), T2 (2% (w/v) HA + NPK 30:15:15), T3 (4% (w/v) HA + NPK 30:15:15), T4 (6% (w/v) HA + NPK 30:15:15), T5 (8% (w/v) HA + NPK 30:15:15) and T6 negative control (NPK 30:15:15). The growth components analyzed were plant height, number of tillers per hill, percentage of productive tillers, number of leaves, panicle length, flag leaf length and phenology. Application of 4% (w/v) HA results in an increase in the percentage of productive tillers. On the other hand, the application of 8% (w/v) HA showed an increase in the number of leaves. In addition, the application of 2% (w/v) HA leads to higher flag leaf length. Therefore, humic acid at 2% (w/v) with half of the recommended NPK (30:15:15) can be used to produce better vegetative growth of Tadong upland rice and reduce chemical fertilizer usage in rice cultivation.