

Morphophysiological characteristics of upland rice plants with organic approach through reduced NPK fertilizer and wood vinegar application

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Abstract	<p>Unefficient use of synthetic fertilizer in upland rice production leads to the low productivity and tends to harm the environment. An organic approach by using wood vinegar is promising to improve the fertilizer efficiency. The objective of this study was to determine the response of upland rice with the application of different wood vinegar and synthetic fertilizer N-P-K rates on morpho-physiological characters. A split plot design with the main plot of N-P-K fertilizer and a subplot of wood vinegar was applied with three replications. Growth and physiological character were observed. The data were analyzed by the F test, then proceed with the Duncan Multiple Range Test at $p \leq 0.05$. The results showed that a half and full recommended synthetic fertilizer rate of N-P-K had a similar result to gaining optimum morpho-physiological character of upland rice. Wood vinegar with a rate of 75 L ha⁻¹ obtained the highest performance on morpho-physiological character of upland rice. An increasing application rate of wood vinegar improved the morpho-physiological character of upland rice at different rates of N-P-K synthetic fertilizers.</p>
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