

ABSTRACT

This study aims to determine the response of peanut plant growth and yield to the application of banana peel organic liquid fertilizer (POC) and rice straw ash. This study used a two-factor Randomized Block Design (RDB) with 3 replicates of the combination treatment. The first factor, banana peel organic liquid fertilizer (POC) consisted of four levels: P0 (0 ml/plant), P1 (50 ml/plant) P2 (75 ml/plant) dan P3 (100 ml/plant), the second factor was rice straw ash consisted of three levels: A0 (0 tons/ha), A1 (2.5 tons/ha) dan A2 (5 tons/ha). The results showed that the banana peel POC treatment affected plant height at 3–5 Days After Planting (DAP), stem diameter at 8 DAP, and leaf chlorophyll content at 4 DAP. The banana peel organic liquid fertilizer (POC) at 100 ml/plant was the best treatment. The rice straw ash treatment affected plant height at 5 DAP, stem diameter at 4 and 6 DAP, and leaf chlorophyll content at 4 and 6 DAP. The rice straw ash treatment at 2.5 tons/ha was the best treatment. The interaction between banana peel POC and rice straw ash treatments showed an effect on stem diameter at 4 and 6 DAP and leaf chlorophyll content at 6 DAP. The treatment consisting of 100 ml/plant of banana peel POC and 2.5 tons/ha of rice straw ash was the best interaction.

Research findings indicate that the application of banana peel liquid organic fertilizer (POC) and rice straw ash can serve as a source of organic matter with the potential to enhance peanut plant growth by supplying nutrients and improving the growing medium. A combination of 100 ml/plant of banana peel POC and 2.5 tons/ha of rice straw ash yielded an optimal response regarding stem diameter and leaf chlorophyll content. These results demonstrate that the integrated use of banana peel POC and rice straw ash has the potential to support peanut plant growth and serve as an alternative for sustainable soil fertility management.

Keywords: Ameliorant, Organic fertilizer, Pod, Nutrient, Vegetative