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Effect of Continuous Treatment of Mixed Organic Fertilizer With Food Waste on the Growth and Yield of *Solanum lycopersicum*

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[Abstract]
According to the statistics of the Ministry of Environment, the amount of food waste generated in Korea is 15,903 tons, which accounts for about 30% of the daily household waste. Food waste in Korea is on the rise, and various odors, greenhouse gases, and leachate generated in the process of discharging, transporting, and processing are emerging as social problems. Accordingly, there is a need for a method for recycling food waste. Therefore, this study was carried out to establish an appropriate limiting dose by manufacturing fertilizer mixed with food waste powder and treating it on tomatoes to investigate the growth and yield of crops. The experiment was carried out with continuous cultivation in 2021 (1st year) and 2022 (2nd year), and the treatment groups were set to No Treatment (NT), Chemical Fertilizer (CF), Mixed Fertilizer (MF), and Mixed Fertilizer×2 (MF×2). As a result of the 1st year growth survey, shoot and root length did not show a significant difference between the treatment groups, and the fresh weight showed a significant difference between the MF and MF×2 . As a result of the 2nd year growth survey, there was no significant difference in shoot length, root length, and dry weight between the treatment groups, and the fresh weight of the CF was significantly greater than that of the MF×2. The yield of 1st year, MF×2 increased significantly compared to other treatment groups. In the case of 2nd year, CF, and MF×2 show significantly high values compared to NT. Judging from these results, continuous cultivation using food waste powder mixed fertilizer did not have a significant effect on crop growth and yield. However, it is considered that several studies including continuous cultivation experiments are needed to accurately set the appropriate application amount and limit the application amount of the mixed fertilizer for food waste.

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