Moringa oleifera Seed Treated Sanitized Water Effect on Growth and Morpho-physiology of Commonly Consumed Vegetables of Malaysia

ABSTRACT

Moringa oleifera seed solution was used in this study to treat municipal wastewater that were used as the treatment in this study. There were 3 treatments used: treated wastewater, normal tape water and untreated wastewater. The wastewater were collected at main drainage at Batu 7 (5o52'57.2"N 118o02'39.7" E) and diagnosed based on the pH and EC. Data on plant height (cm), number of leaves, leaves length (cm), chlorophyll, and number of primary branches were taken every week until week 4. For root length (cm), fresh weight(g), dry weight (g) and moisture were taken after the harvesting. The data collected were analyzed by using Statistical Analysis Software (SAS) version 9.4 computer program with experimental design was Randomized Complete Block Design (RCBD). The means were separated and compared using Duncan's Multiple Range Test (DMRT)at 0.05 significant level. M.oleiferaseeds solution treated irrigation exhibited positive outcomes for most of the parameters recorded, but response of different vegetables were also different on varied parameters. The increase of pH from untreated waste water (6.40) to sanitized/treated waste water (6.73) and reduction of EC from untreated waste water (367.9) to sanitized/treated waste water (359.1) is the proof of making nutrients more available for plants uptake. From the overall study it is proved that M.oleiferaseeds are suitable as the replacement and an alternative besides chemical coagulant to treat wastewater which is cheaper, eco-friendly and sustainable to be used in agricultural irrigation based on all the parameters evaluated in this study.