

# **USING SOME ORGANIC HOUSE WASTE ON GREEN ROOF**

**Submitted By**

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## ABSTRACT

The urban agriculture took more attention during the last two decades not just on global scale but also on local scale for many reasons such as food security and safety, climate change impacts and environmental concerns.

The study was carried out on the roof of the Central Laboratory for Agriculture Climate (CLAC), Agriculture Research Centre, Egypt, during the three years 2014, 2015 and 2016 through 2 seasons each year (summer seasons of 2014 and 2015 included tomato and molokhia while strawberry and spinach in autumn seasons of 2015 and 2016)

The study aimed to investigate the effect of different vermicompost rates mixed with standard substrate perlite (perlite: vermicompost (90 :10) (Mix.10%), perlite : vermicompost (80 :20) (Mix.20%), perlite: vermicompost (70 :30) (Mix.30%) and perlite (100V) (Control)) and nutrient solutions sources (chemical solution , vermi- liquid and vermi- chemical at constant EC for each crop under the study) on the yield and quality of tomato and strawberry under urban agriculture conditions. Physical and chemical properties of substrates, vegetative growth, quality characteristics, yield and N, P and K of plant contents and heavy metals contents in strawberry, tomato fruits , molokhia and spinach were determined.

The obtained results showed that the vegetative and yield characteristics, chemical quality properties, N, P and K leaves contents and heavy metals contents of tomato and strawberry fruits were affected strongly by vermicompost rate mixed with substrate. The highest vegetative growth and yield characteristics and N, P and K contents of tomato and strawberry were given by chemical followed by vermi-chemical nutrient solution combined with Mix.30% followed by Mix.20% while in molokhia and spinach the

highest vegetative growth and yield characteristics were given by chemical followed by vermi-chemical nutrient solution combined with Mix.10% followed by Mix.20%.

Vermicompost either its application or increasing rate had a positive impact on reducing the heavy metals contents of tomato and strawberry fruits. The use of vermi-liquid as a nutrient solution and vermicompost as a substrate amendment had a positive impact not just on tomato, strawberry, molokhia and spinach production (food security) via urban agriculture but also on environmental issue and climate change adaptation.

**Keywords:**

Green roofs, urban agriculture, vermicomposting, vermicompost, nutrient solution, substrate culture, tomato, strawberry, molokhia, spinach.

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