Effect of solid and aqueous extract of vermicompost on growth characteristics of tomato and greenhouse whitefly (*Trialeurodes vaporariorum*)

A. Peimani Foroushani[1], N. Poorjavad[1]*, M. Haghighi[1] and J. Khajehali[1]

(Received: 11 jan 2015 ; Accepted: 7 may 2015)

Abstract

Considering the increase of using vermicompost fertilizers in greenhouse cultivation, effect of vermicompost application on growth characteristics of tomato and one of its major pests [greenhouse whitefly, *Trialeurodes vaporariorum* (Hem:Aleyrodidae)] was investigated. The experiment consisted of five treatments: control (without vermicompost), 30% and 60% solid vermicompost fertilizer, and 40% and 20% aqueous extracts of vermicompost. Effect of vermicompost on greenhouse whitefly was tested for two different cases of with-choice and no-choice. Results showed that significant increase in shoot dry weight and root dry weight of tomato in vermicompost treatments. The highest increase (18 and 12 fold, respectively) was observed in plants treated with 60% solid vermicompost. The highest amount of nitrogen (0.43 mg/kg), potassium (14.56 mg/kg) and phenol (1130.46 ppm) was recorded in60% solid vermicompost treatment. Also, application of vermicompost reduced the percentage of infested leaves to whitefly, such that the lowest amounts were 6.67% and 8.97% in 60% and 30% solid vermicompost treatments, respectively, and 10.53% in 40% aqueous extract of vermicompost. The mortality of the second instar nymph of greenhouse whitefly-the stage that insects become fixed to the leaves by their sucking mouthparts- was increased (about 10%) by application of vermicompost.

Keywords: Tomato, Sucking pest, Choice test, No-choice test, Greenhouse culture.

1. Dept. of Plant Prot., College of Agric., Isfahan Univ. of Technol., Isfahan, Iran.
*: Corresponding Author, Email: npoorjavad@cc.iut.ac.ir

[DOR: 20.1001.1.20089082.1395.7.2.4.2]
[DOI: 10.18869/acadpub.ejgcst.7.2.35]