The 1st International Conference on New Ideas in Agriculture
Islamic Azad University Khorasgan Branch
26-27 Jan. 2014, Isfahan, Iran

THE EFFECT OF IRON RICHED ZEOLITE APPLICATION ON TOMATO YIELD AND QUALITY IN SOILLESS CULTURE

Solmaz Sherafatmand and Mehran Hoodaji and Abdolreza Eghtedari
Solmaz.sherafatmand@yahoo.com

ABSTRACT

In recent year, a wide range of soilless culture techniques have been developed and commercially introduced for intensive production of horticultural crops, particularly in greenhouses. Reasons for replacing soils as growing media arise from plant protection problems with soil-borne pathogens and environmental regulations against ground water pollution with nitrate and pesticides. The aim of this study was to compare some growing indexes of greenhouse tomato. That were cultivated in some substrates, such as perlite, zeolite and coco peat. The research was conducted in a completely randomized design with 4 replications. The treatments were coco peat + perlite (v/v=50%), coco peat + perlite (v/v=50%) + zeolite (v/v=10%), coco peat + perlite (v/v=50%), coco peat + perlite (v/v=50%) + zeolite (v/v=5%). Sonneveld and woogt formula was used for nutrient solution during plant growth with fertigation method. Also temperature, humidity and irrigation rate was constant for all treatments. Comparison of means showed that the media had no significant effect on concentration of nutrient elements in fruits, stem and leaves such as Fe, Cu. Minimum and maximum amount of concentration of nutrient was in riched zeolite with cation + perlite + coco peat treatments. That had no significant difference with other treatments. Higher amount of total soluble solids (TSS) related to free zeolite treatment . The results showed that zeolite is an appropriate media for soilless culture with suitable physical and chemical properties, availability and low cost. Therefore, it can be a new substrate that is introduced for replacing other media.

Keywords: zeolite; soilless culture: tomato

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