

Abstract:

A glasshouse experiment was conducted for two consecutive seasons (2000/01 and 2001/02) using a sandy soil and four dripper types with four irrigation systems. The objective of the experiment was to evaluate the effect of these treatments on vegetative growth, yield and quality of the variety Carmelo of tomato and N, K and P contents of the soil. The study was carried out at the Agricultural and Veterinary Training and Research Station of King Faisal University in Al-Hassa oasis, which is characterized by hot and dry climate. The results showed that using adjustable dripper resulted in the highest values of plant height, number of leaves/plant, leaf area, root length, dry/fresh weight of root (%), average fruit weight, number of fruits/plant and yield/plant, as well as N%, K%, P% and electrical conductivity (EC) of the soil. Using 20 cm subsurface irrigation gave the highest values for plant height, number of leaves/plant, leaf area, dry/fresh weight of plant (%), root length, dry/fresh weight of root (%), average fruit weight, number of fruits/plant, yield/plant (kg), and N%, P%, K% and EC of the soil. The interaction between dripper type and irrigation system produced the highest values for all vegetative and reproductive parameters, fruit quality and N%, K%, P% and EC of the soil. It is concluded that adjustable dripper with 20 cm subsurface irrigation could be useful for enhancing the vegetative growth and total yield of tomato plants in Al-Hassa oasis, Kingdom of Saudi Arabia.