

Abstract

Water scarcity is the major constrain to the agricultural sector in the Palestinian Territories. Consequently, the search for alternative water resources for irrigation is vital for the sustainable development of agriculture in this area. Both reclaimed wastewater and brackish water represent highly attractive water sources for irrigation of crops. However, both sources cause various strains stresses on cultivated plants, where salinity stress is the most damaging one. In this respect, the use of natural growth regulators (e.g. Jasmonic acid -JA-) to alleviate stress may be a possible mean to alleviate stress imposed by a 'Mix' of both reclaimed wastewater and brackish water. In this research, Seeds of Broad Bean *Vicia faba* (cv. Primarenca) which are classified as sensitive plant to salinity, were planted on December, 2004 in 42 L pots, filled with soil mixture composed of, peat moss, sand, and clay in 2:1:1 ratio (by volume). Plants were randomly distributed in the green house and divided into three blocks. Experimental design was completely randomized block design, with two plants per replicate and three replicates per treatment. Plants were divided into two groups: plants in the first group were irrigated with reclaimed water, whereas plants in the second group were irrigated with a composed of reclaimed wastewater and salt (NaCl) and designated as 'Mix' in the following sections; EC of the 'Mix' was started with 1.5 dS m⁻¹ increased gradually and ended with 7.0 dS m⁻¹. Within each group, there were several treatments as follows: JA treatments with different rates (0.0 mM, 0.5 mM, 1.0 mM, and 1.5 mM). Exogenous applications of Jasmonic acid tend to

improve the tolerance of plants irrigated with 'Mix'-water that has an EC-value of 5 to 7 dS m⁻¹. That was evident in lower salt injuries and less wilting, but with higher average fruit weight, higher Ca and K level in leaves for plants treated with higher level of JA. Most other parameters did not differ significantly between treatments, and no obvious trends can register.