

Effect of mulch on tomato (*Solanum lycopersicum*) exposed to temperature and water stress

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Understanding the effect of temperature stress on growth and yield of crops, and also identifying suitable management options to sustain the productivity under different changes in the natural environment are of timely important due to climate change. The main aim of this research was to compare the morphological, physical, yield and quality parameters of tomato with mulches (*Solanum lycopersium*) exposed to temperature and water stress. The growth and yield parameters measured following methods. The relative water content in the fully expanded topmost leaf of the main shoot was determined. Chlorophyll content, Refractometers measure on a "Brix" scale and the °Brix level were determined Penetrometer devices were used to measure the firmness of the fruit. The plants were grown in pots under two temperature regulated poly tunnels. Main plot included two different wetting applications (no water stress, 50% water stress from the field capacity). Coir dust and saw dust were used as mulch types and sub plots contained 3 different temperature regimes (34^oC maximum temperature polytunnel; 32^oC maximum temperature polytunnel and ambient temperature). The treatments were set up in a completely randomized design with 3 replicates. Field experiments were conducted at the field of the Open University, Nawala during the period from December 2012 to May 2013. According to the results, there is significant effect of mulch on growth parameters of tomato plants exposed to water and temperature stresses. Individual water stress showed highly significant effect on growth, and yield parameters of tomato. High yield reduction was shown in the water stressed plants.

Keyword: Climatic change, temperature stress, mulch, water stress