

**GROWING OF TOMATO PLANTS ON THIN-LAYER SOIL ANALOGUE AND
STUDYING THE OSCILLATION PROCESSES OF WATER-MINERAL
METABOLISM OF PLANTS IN ONTOGENESIS**

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A new type of juvenile thin-layer soil analogue is offered. The composition of the soil analogue is a combination of Cambrian clay, bentonite clay, schungite and sapropel. The effect of the soil analogue on dynamics of water metabolism of tomato plants, plant productivity, the dynamics of the absorption of nitrate nitrogen, phosphorus, potassium, calcium, magnesium during plants growth is being discussed. The experiment was carried out under controlled conditions. It was shown that the dynamics of plant transpiration is the oscillatory process. Using the methods of spectral analysis of one-dimensional time series, the dynamics of plant transpiration for all variants of the experiment were analysed. The most intensive harmonic periodicities have been identified. If the short-wave and long-wave frequencies of oscillations were simultaneously present in the mechanism of transpiration then the maximum efficiency of tomato plants was achieved. It was shown that the periodicities of water metabolism are closely related with the periodicity of chemical elements concentration in plants.

Keywords: juvenile thin-layer soil analogue, transpiration, productivity, spectral analysis, periodicity, oscillations, chemical elements, time series.