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Study of regulating activity of synthetic low molecular weight heterocyclic compounds, derivatives of pyrimidine on growth of tomato(*Solanum lycopersicum* L.) seedlings

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Abstract : The comparative analysis of growth regulating activity of new synthetic low molecular weight heterocyclic compounds (LMWHC), derivatives of pyrimidine, and plant hormones auxins IAA(1*H*-Indol-3-ylaceticacid) and NAA(1-Naphthylaceticacid) on vegetative growth of tomato(*Solanum lycopersicum* L.)cultivar Fakel was conducted in the laboratory conditions. Our study showed that synthetic LMWHC, derivatives of pyrimidine used at the concentration 10^{-9}M demonstrated high auxin-like regulating activity on growth of tomato seedlings during the 8 weeks. The morphometric parameters of shoots and roots on the 8^{th}-week-old tomato seedlings grown in perlite moistened with solutions of synthetic LMWHC, derivatives of pyrimidine used at the concentration 10^{-9}M were similar or higher to the morphometric parameters of shoots and roots on the 8^{th}-week-old tomato seedlings grown in perlite moistened with distilled water (control) or solutions of plant hormones auxins IAA and NAA used at the same concentration 10^{-9}M on average: to 21 - 30 % - for length of shoots, to 8 - 80 % - for average shoot mass, to 10 - 20 % - for length of main root, to 10 – 46 % - for average root mass, respectively. It was found that the plant growth regulating activity of these compounds depended on different substituents in the chemical structure of heterocyclic compounds. The obtained results proved the possibility of practical application of synthetic LMWHC, derivatives of pyrimidine as new effective regulators for vegetative growth of tomato(*Solanum lycopersicum* L.)cultivar Fakel.

Key words : tomato (*Solanum lycopersicum* L.), plant growth regulators, synthetic low molecular weight heterocyclic compounds, derivatives of pyrimidine, auxins IAA and NAA.

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