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Using the derivatives of pyrimidine, pyrazole, isoflavones, pyridine, oxazolopyrimidine and oxazole as new substitutes of auxins and cytokinins for regulation of plant growth

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The auxin-like and cytokinin-like activity of chemical low molecular weight heterocyclic compounds, derivatives of pyrimidine, pyrazole, isoflavones, pyridine, oxazolopyrimidine and oxazole was studied. The specific bioassay on auxin-like activity conducted on the leaf petioles isolated from seedlings of haricot bean (*Phaseolus vulgaris* L.) cultivar Belozernaya showed high stimulating effect of the chemical heterocyclic compounds, derivatives of pyrimidine, pyrazole, isoflavones, and pyridine used at the concentration 10⁻⁸M on the formation of adventitious roots on the 14th-day-old leaf petioles isolated from seedlings of haricot bean (*Phaseolus vulgaris* L.) cultivar Belozernaya, which was similar or higher of the effect of plant hormones auxins IAA and NAA used at the same concentration 10⁻⁸M. The specific bioassay on cytokinin-like activity conducted on the cotyledons isolated from seeds of muscat pumpkin (*Cucurbita moschata* Duch. ex Poir.) cultivar Gilea showed the high stimulating effect of chemical heterocyclic compounds, derivatives of pyrimidine, pyrazole, isoflavones, pyridine, oxazolopyrimidine and oxazole used at the concentrations 10⁻⁸M and 10⁻⁹M on the growth of biomass of 16th-day-old cotyledons isolated from seeds of muscat pumpkin (*Cucurbita moschata* Duch. et Poir.) cultivar Gilea, which was similar or higher of the effect of plant hormone cytokinin kinetin used at the same concentrations 10⁻⁸M and 10⁻⁹M. The obtained results confirmed the inducing auxin-like and cytokinin-like effect of synthetic heterocyclic compounds on plant cell elongation, division and differentiation that are the basic processes of plant growth.

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