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Study of auxin-like and cytokinin-like activities of derivatives of pyrimidine, pyrazole, isoflavones, pyridine, oxazolopyrimidine and oxazole on haricot bean and pumpkin plants

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Abstract: The auxin-like and cytokinin-like activities of new chemical low molecular weight heterocyclic compounds, derivatives of pyrimidine, pyrazole, isoflavones, pyridine, oxazolopyrimidine and oxazole were studied. The specific bioassay on auxin-like activity showed high stimulating effect of the chemical heterocyclic compounds, derivatives of pyrimidine, pyrazole, isoflavones, and pyridine used at the concentration 10^{-8}M 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^{-8}M. The specific bioassay on cytokinin-like activity showed the high stimulating effect of the chemical heterocyclic compounds, derivatives of pyrimidine, pyrazole, isoflavones, pyridine, oxazolopyrimidine and oxazole used at the concentrations 10^{-8}M and 10^{-9}M 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^{-8}M and 10^{-9}M. The obtained results proved 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.

Keywords: plant hormones, IAA, NAA, Kinetin, pyrimidine, pyrazole, isoflavones, pyridine, oxazolopyrimidine, oxazole, *Phaseolus vulgaris* L., *Cucurbita moschata* Duch. et Poir.

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