



INFLUENCE OF FLAVONOIDS FROM *VERBASCUM PHLOMOIDES* L. ON THE HORMONAL STATUS OF PEARS

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One of the most important tasks of modern agriculture is to obtain environmentally friendly products that preserve the integrity of valuable substances. Recently, natural growth regulators have been increasingly used to control the production process of fruit crops; the exogenous use in minimal doses is able to mobilize the genetic potential of plant resistance to adverse environmental factors, positively affecting the yield and quality of the final product. Growth bio-regulators are obtained from various plants.

Potentially promising are plants with a high content of phenol compounds, which include the *Plantaginaceae* family, representative of the wild flora of Moldova, due to their significant physiological activity. The influence of the purified flavonoid extract, obtained from *Verbascum phlomoides* L. (medicinal mullein), which grows everywhere on the territory of Moldova and contains a significant amount of phenolic compounds, was studied on a variety of pears with different maturation periods.

As a result of the phytochemical analysis of the extracts of the above-ground part of the medicinal mullein, the presence of the main groups of biologically active substances was established: flavonoids, iridoids, polysaccharides, saponins, etc. To separate them, 40 % water-alcohol extracts were concentrated under vacuum, purified by chloroform from chlorophyll and lipophilic substances, and the aqueous fraction was separated on Sephadex LH-20, washing the column first with water, and then with ethanol with an increasing concentration of the latter from 40 to 95 %. All identical alcoholic eluates were combined, evaporated, dried and used to study its effect as a growth regulator on some indicators of growth processes and hormonal balance of the cultivars of pears growing in Moldova, 'Sokrovishce' and 'Noiabrskaia'.

Plants were sprayed with a 0.01 % flavonoid aqueous solution in the most important periods of vegetation (active growth of annual shoots, fruit growth, laying and differentiation of flower buds). Meanwhile, the biological activity of endogenous growth regulators, in leaves and fruits randomly collected, was determined by Kefeli and Thin Layer Chromatography method.

Studies have shown that plants are very responsive to the use of flavonoid extract from *V. phlomoides* and the effectiveness of its action is reliably established for both varieties. The mullein extract affects the hormonal status of the pear plant and stimulates the growth processes, leading to an incremental linear size of the plant organs and boosting the stimulating activity of endogenous growth regulators. The differences in the activity and the ratio of endogenous growth regulators in the control and the experiment itself, suggest that the effect of the flavonoid extract is due to its participation in the synthesis and decay of the endogenous growth regulators in leaves and fruits of the pear, which leads to a reconfiguration of the hormonal balance and contributes to a more complete realization of the reproductive and adaptive potential of plants.

Keywords: growth regulators, *Verbascum phlomoides* L., flavonoids, pear.