

THE EXPERIENCE OF THE TRANSFORMATION OF SOME CULTIVATED PLANTS WITH THE GENE UGT ENCODING THE SYNTHESIS OF UDPG-TRANSFERASE IN ORDER TO CHANGE THE HORMONAL STATUS

Rekoslavskaya N.I.

The Siberian Institute of Plant Physiology and Biochemistry SB RAS, Irkutsk, Russia

e-mail: rekoslavskaya@sifibr.irk.ru

The gene *ugt/iaglu* was isolated from cDNA library obtained from seedlings of *Zea mays* L. Positive clones prepared by Lambda ZAPII (Stratagene, USA) procedure were screened via western blot with antibodies to UDPG-transferase from corn endosperm raised in rabbit serum. The plasmid pBluescript harboring the gene *ugt/iaglu* was placed into *Escherichia coli* (*E.coli*) DH5a under T7/T3 promoter. The gene *ugt/iaglu* was sequenced and the size was determined as much as 1740 bp. The UDPG-transferase or by trivial name Indoleacetic acid (IAA) - glucose synthase (IAGlu-synthase) binds IAA with glucose from UDPG thereby making the temporary inactivation and storing of this phytohormone which is capable to be released after the demand from cells. Several cultivated plants were used for transformation with the gene *ugt/iaglu* from corn: tomato, potato, lettuce, egg-plant, pepper, strawberry, cucumber, squash, aspen, poplar, pine and others. All plants transformed with the gene *ugt/iaglu* showed fast growth, better flowering and harvest. The insertion and expression of the gene *ugt/iaglu* was confirmed in transformed tomato, potato and aspen with PCR, RT-PCR, southern and northern blottings. The contents of free IAA and its bound form IAGlu were higher as much as twice in tomato, potato and aspen transformed with the gene *ugt/iaglu*. The harvest of tomato was 3-4 times higher in transgenic tomato. The amount of potato tubers and their whole masses were 1.5 - 2 times higher in transgenic potato of several varieties in comparison to control.