

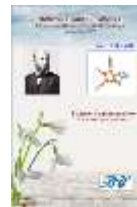


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The study of GLYMA_11G180800 gene expression in the varieties and cultivars of soybeans at different stages of ontogenesis

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Abstract

As part of the study of molecular biological mechanisms for the regulation of maturation process in soybean plants (*Glycine max* (L.) Merr.), differential expression of genes that potentially determine the formation of early ripening phenotype of soybean plants was analyzed.

As a result of a comparative analysis of expression levels of one of such genes – a previously not characterized GLYMA_11G180800 gene encoding short-chain sexolary-cyresinol dehydrogenase-like protein – a correlation of the degree of increased expression of the studied gene with the degree of maturation speed of the studied soy varieties and cultivars was revealed. So the expression of this gene was about 3.5 times higher in the early-ripening genotype of soybean – sample No. 15, at the stage of development of the first triple leaf. At the next stage of development – the second triplet leaf, the expression of the gene in the leaves of variety No. 15 was 20 times higher more, and in the meadle-ripening Altom cultivar 3.5 times compared with the late-ripening Vilana variety and sample No. 3169/14. In the butonization developmental phase, the relative number of transcripts in GLYMA_11G180800 gene increased in higher early ripening samples, and at this stage a complete correlation was observed between the level of expression of the gene under study and the degree of maturation speed of the soybean genotype. Thus, the number of transcripts of the sekoisolaricyresinol dehydrogenase-like soybean protein gene in soybean sample No. 3169/14 was 9 times higher than in the most late-ripening cultivar Vilana. The expression of the gene under study in the most early ripening sample No. 15 was almost 160 times higher than that in the Vilana cultivar.

The dynamics of the change in the relative expression of this gene in soybean varieties and sorts that differ in maturation speed at various stages of ontogenesis indicate the possible

participation of the protein encoded by this gene in the regulation of the flowering and ripening processes of soybean plants.

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