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ALTERATION OF PLANT MORPHOLOGY BY CONTROL OF PROFILIN EXPRESSION

ABSTRACT

Plant growth habit is altered by causing either under-expression or over-expression of profilin in a plant cell. Under-expression of profilin can be achieved by transforming a plant or plant cell with a gene expressing an antisense mRNA complementary to the mRNA transcribed by the coding sequence of a profilin gene and expressing the gene in the plant or plant cell such that the antisense mRNA inhibits the production of the profilin in the plant or plant cell. Under-expression of profilins in plants can lead to such alterations in growth habit as a dwarf phenotype, a reduced root and root hair system, and delay in the onset of flowering. Over-expression of profilin can be achieved by transforming a plant or plant cell with a gene capable of expressing a profilin in the plant or plant cell and causing the transformed gene to be expressed in the plant or plant cell. Over-expression of profilin in a plant can lead to such alterations in growth habit as a tall phenotype, an expansion of the root and root hair system, expansion of leaf surface area and accelerating the onset of flowering.

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