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Studies on the expression of exogenous p5CS gene in transgenic wheatgrasses

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Key words : Wheatgrasses , Transgenic , p5CS gene , Northern blot

Introduction Transgenic wheatgrasses generated from hybrid wheatgrasses (*Agropyron cristatum* × *A. desertorum* cv . Hycrest-Mengnong) were indentified by PCR analysis and Southern blot . The p5CS gene , which regulates the last step of proline synthesis in plants , was transferred into wheatgrasses . Northern blot was investigated . Results of Northern blot assay displayed that exogenous gene p5CS was expressed at transcription level in transgenic plants . New salt resistance plant lines which are adapted to extensive arid and semiarid areas of west China are expected to breed through these processes .

Materials and methods Plants of Hycrest-Mengnong wheatgrasses with p5CS gene that have been tested by PCR and southern blot were used as materials and compared to non transgenic plants . Plant total RNA was extracted by kit ; after plasmid DNA was amplified by PCR , arm fragments were extracted by kit as templates . They were labeled with DIG High prime DNA Labeling and Detection Starter Kit I by the random primer method ; electrophoresed RNA in formol denatured gel ; transferred using capillary blotting ; hybridized and detected by probe labeled with DIG .

Results Figure 1 shows the results of Northern blotting of p5CS transgenic plants and negative plants . The hybridization band of p5CS transgenic plants tested by PCR and Southern blot hybridized with the DIG probe was obvious . It proved that exogenous gene p5CS is expressed at transcription level in transgenic plants .

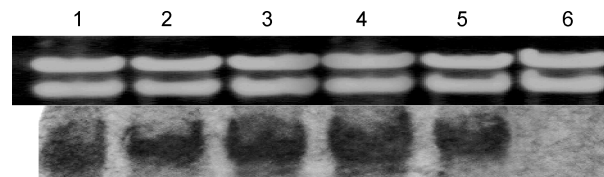


Figure 1 5 Northern blotting of transgenic wheatgrass plant .
1~5— transgenic plants ,6— negative control

Conclusions The p5CS catalyse the proline biosynthesis . Its activity , inhibited by proline content , p5CSF129A is a mutant wipe off feedback inhibition of p5CS and it led to a multiple increase of proline content , thus can enhance the protection of plant under osmotic stress . Now it has been transformed into many plant species as tobacco , rice , ryegrass and tall fescue to enhance the resistance to drought and salt . The results indicated that the exogenous gene p5CS was expressed at transcription level in transgenic plants .

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