Studies on Transgenic Wheatgrass of Exogenous CBF$_4$ Gene

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Introduction After transgenic hybrid wheatgrass (*Agropron cristatu* × *A .desertorum cv* . Hycrest-Mengnong) of CBF_4 has been obtained , the transformation and copy number were detected by Southern blot . The exogenous gene has been integrated into the genomic DNA and inserted into the chromosome of receptor cells by multicopy integration . Exogenous gene fragments have been transferred into ycrest-Mengnong wheatgrass successfully .

Materials and methods The transformed(by gene gun) and non transformed Hycrest-Mengnong wheatgrass plants were used as materials . Plant genomic DNA was sheared by restriction endonucleases . Aim fragments from plasmid DNA which were amplificated by PCR were the templets . The DIG label and detected kit were used to label the probe and to ascertain the transformation of fragments .

Results Figure 1 shows the Southern hybridization map . From Figure 1 , the hybridization band of CBF_4 transgenic plants were obvious and the integration number is 2-5 .

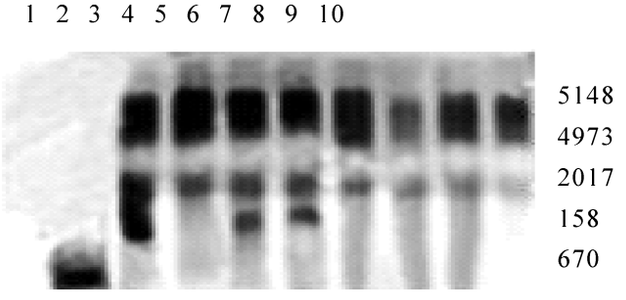

Figure 1 *Southern analysis of digested total genomic DNA from transgenic wheatgrass probed with DIG labeled plasmid DNA (CBF_4) . 1-negative control , 2-positive control ,3-10-transgenic plants .*

Conclusions The CBF_4 gene is a new member of CBF family isolated from *Arabidopsis thaliana* reported by Volker Haake , Daniel Cook . The CBF_4 gene's expression was induced by drought , not low temperature . The resistance of *Arabidopsis thaliana* plants to drought and low temperature will be enhanced if CBF_4 gene expresses excessively . The results of Southern blotting indicated that the exogenous gene CBF_4 has been integrated into wheatgrasses plants and inserted into the chromosome with multicopy .

References

Haake V . , Cook D . , Riechmann J L . , Pineda O . , Thomashow M . F . , and Zhang J Z . Transcription factor CBF_4 is a regulator of drought adaptation in Arabidopsis . *Plant Physiol* ,2002 ,130 : 639-648 .

Wang G .L , and Fang H .J , eds . Plant genetic engineering principle and technique ,Science Press , Beijing , China ,2002 , pp . 428-432 .