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Isolation and Sequence Analysis of *Ycf4* Gene from *Zoysia japonica* Steud.

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Zoysia japonica Steud.(*Zj*) is a typical warm-season Korean lawn grass, which is used in many places such as river banks, roadside and soccer fields in Korea. Recently, it has also been used in school yards and the Saemangeum reclaimed land to reduce water pollution. Although the cultivated area of turfgrass is steadily increasing worldwide, it grows fast requiring frequent mowing and is difficult to grow in shady areas and the cold region. Therefore this study aims searching for useful gene(s) to develop abiotic stress tolerant and dwarf zoysiagrass. We isolated *Ycf4* gene based on the sequence from *Oryza sativa Japonica* through RT-PCR and RACE PCR. Ultimately, open reading frame (ORF) of *ZjYcf4* was 558bp long, encoding a protein of 186 amino acid residues. NCBI blast results showed that the ZjYcf4 protein is evolutionarily closely related to Ycf4 protein from *Zoysia macrantha* and *Setaria italica* (100% and 98%, respectively). To determine whether *ZjYcf4* was involved in environmental stress in wild-type zoysiagrass, expression patterns of the gene were analyzed by real-time PCR under salt, cold and dark conditions. They were analyzed after each stress treatment for 3 hours. In salt and cold stresses, the expression was higher compared to control (3-fold and 1.5-fold, respectively), although there was a 1.6-fold decrease in expression under dark stress treatment. As reported previously, we suggest that *ZjYcf4* gene affects abiotic stress such as salt, cold and dark.

Key words: *Zoysia*, aboitic stresses, dwarf, stress treatment

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