Cloning of plant cell wall-loosening protein (expansin) genes from *Arabidopsis thaliana* into *Escherichia coli DH5α*

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Expansin is the cell wall-loosening proteins occurring in plants, which act during auxin-induced growth. Expansins, which are recently found to have a cellulose-binding domain and a catalytic domain, are thought to disrupt hydrogen bonding between cellulose fibers without any hydrolytic activity. Expansin genes have been identified from a wide variety of plant species including cucumber, *Arabidopsis*, rice, soybean and tomato. *Arabidopsis* currently gives us the best inventory of expansin genes and so far 31 distinct expansin genes (α and β type) were identified. Among these expansin genes, one each from α- and β-expansin genes in the geneomic sequence database of *Arabidopsis thaliana* were used to design the primers possessing the recognition sites of *BamHI* and *XhoI* restriction enzymes for the Reverse Transcription Polymerase Chain Reaction (RT-PCR). The obtained cDNAs of *Arabidopsis Thaliana* were cloned by the utilizing of pGEM and pGEX vectors in *Escherichia coli DH5α*. The sequencing of the inserted α and β-expansin genes in recombinant *Escherichia coli DH5α* confirmed as 800 and 848 base pair, respectively, with the recognition sites of *BamHI* and *XhoI*.