Characterization of β-1,3-glucanase gene in peanut (*Arachis hypogaea* L.) by cloning and genetic transformation.

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Plant β-1,3-glucanase is commonly found to be involved in the disease resistance. A β-1,3-glucanase gene was isolated from both the genomic DNA and cDNA of peanut variety Huayu20 by PCR and RT-PCR, respectively (GenBank Accession No. JQ801335). The genomic DNA sequence was 1,471 bp including two extrons and one intron, and the coding sequence was 1,047 bp, encoding 348 amino acids with calculated molecular weight of 38.8 kDa. It was found that there was 42%–90% homology to proteins from *Oryza sativa* (BAC83070.1), *Zea mays* (NP_001149308), *Arabidopsis thaliana* (NP_200470.1), *Medicago sativa* (ABD91577.1) and *Glycine max* (XP_003530515.1). The over expression vector pCAMBIA1301-Glu including *Ah-Glu* was constructed, and transformed into peanut variety Huayu22 by Agrobacterium EHA105 strain mediated transformation method. Some transgenic plants showed stable integration of the fusion gene as evidenced by GUS stain, PCR and RT-PCR analyses. In vitro and the field tests of T₀ against peanut early leaf spot *Cercospora arachidicola*, transgenic peanuts showed increased disease resistance with less disease symptoms than the non-transgenic peanuts.