

Analysis of seed grain quality of transgenic rice produced by *Agrobacterium*-mediated transformation

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Although great success has been achieved in *Agrobacterium*-mediated transformation of rice, many risks still have been remained in practical use of transgenic rice, especially as a staple food. The limited utilization of transgenic rice grain was mainly due to selectable marker genes. And, also, the risks of transgenic rice as a food were carefully suggested in using *A. tumefaciens*, because of an unaimed protein produced by DNA fragment of *Agrobacterium*, which could be integrated unexpectedly into the host plant genome, followed by causing allergies in human. For last several years, we have improved transformation efficiencies using *Agrobacterium* via developed basta herbicide resistant transgenic rices with various korean domestic elite cultivars. Since chemical analysis of transgenic grains is the prerequisite prior to practically use them as a food, nutritional compositions, such as proteins, fatty acids, and amino acids, were analyzed with de-husked seed grains of homogeneous T2 and T3 lines, Nagdongbyeon. The protein contents were not significantly varied among the lines ranging from 6.0% to 6.7% and average of them was 6.49% which is same level as non-transgenic grains. Content range of fatty acids in transgenic grains were 23.0%-25.4% and 74.6%-77.0% in saturated and unsaturated fatty acid, respectively. Average contents of them were 24.3% and 75.7% in transgenic grain and 24.5% and 75.5% in non-transgenic grains, respectively. Amino acids contents were not significantly different between the transgenic and non-transgenic grains. In results, nutritional equivalences were observed between the transgenic rice grains, which produced by *A. tumefaciens* (LBA4404) harboring *bar* gene, and non-transgenic grains. This means that chemical compositions of rice were not affected by using *Agrobacterium*, therefore, these results will be the important estimation basis in utilization of the transgenic grains as a food.

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