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Genetic Transformation of a High Molecular Weight Glutenin (*Glu-1Dx5*) to Rice cv. Fatmawati

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Abstract: In order to improve rice dough functionality, we co-transformed the *Glu-1Dx5* gene encoding a high molecular weight (HMW) glutenin subunit Dx5 from bread wheat, *Triticum aestivum* L. and either *bar* gene conferring resistance to herbicide bialaphos or *hpt* gene conferring resistance to hygromycin B to rice callus cells of cv. Fatmawati. We molecularly characterized 9 plants regenerated from bialaphos-containing medium and 63 plants from hygromycin-containing medium. The *Glu-1Dx5* gene was detected by PCR analysis in 15 transgenic T_0 plants. Further analysis of T_1 and T_2 plants revealed that some transgenic plants carried the *Glu-1Dx5* gene. Analysis of the endosperm extracts of T_2 plants by SDS-PAGE revealed the existence of a protein similar in size to the wheat *Glu-1Dx5* gene product, suggesting successful expression of the transgene. These plants will be incorporated into breeding program for further assessment of their benefits.

Keywords: Genetic transformation, *Glu-1Dx5*, High molecular weight glutenin, Rice

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