



EVALUATION OF THE POTENTIAL WEEDINESS AND BIOCHEMICAL PROPERTIES OF TRANSGENIC RICE WITH *GLU-1DX5* GENE

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ABSTRACT

A *Glu-1Dx5* allele, encoding for a high molecular weight glutenin sub unit Dx5, has been experimentally proven to be a major determinant for dough elasticity and functionality of bread wheat. Considering its important role, this gene has been successfully transferred to rice cv Fatmawati using particle bombardment. Some promising lines derived from consecutive generations have been obtained, however early biosafety assessment for transgenic plant is required in order to scientifically evaluate the equality of transgenic rice lines to their counterpart. Two promising lines (T_3 -19 and T_3 -20) which are supposed to be homozygous were subjected to weediness and biochemical evaluation. The evaluation of invasiveness as a measure of weediness was carried out in biosafety containment of BB Biogen, Bogor by growing a mixture of transgenic and non-transgenic. Biochemical testing was evaluated for nitrogen, carbohydrate, protein, fat, vitamin, ash, minerals (Ca and Mg), and 17 amino acids. Weediness testing revealed that competitiveness of transgenic rice plants grown in screen house as well as biosafety containment was equal with those of non transgenic plants, suggesting that transgenic rice plants have not high potency to be invasive. Transgenic rice seed had equal nutritive value with those of counterpart. These results indicate that transgenic rice plants (seeds) are substantially equivalent to non transgenic original lines except for the presence of *Glu-1Dx5* gene.

Key words: Glutenin, Invasiveness, Nutrient composition, Transgenic rice.