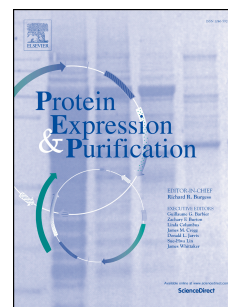


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Expression and activity analysis of  $\beta$  Gallinacin-3 in Arabidopsis

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**Title: Expression and activity analysis of  $\beta$  Gallinacin-3 in Arabidopsis**

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**Abstract**

$\beta$  Gallinacin-3 ( $\beta$  Gal-3) is an antimicrobial peptide with strong antibacterial activity against *Escherichia coli*, *Staphylococcus aureus* and *Salmonella typhimurium*. In this study, the  $\beta$  Gal-3 gene was transferred into a plant genome by genetic engineering techniques. These transgenic plants can be used as feed additives to prevent poultry diseases and they might replace the antibiotics used in poultry industry. To ensure the  $\beta$  Gal-3 expresses effectively in *Arabidopsis* seeds, the expression was driven by promoter Ppha cloned from the  $\beta$ -phaseolin storage protein gene. A total of 294 transgenic lines were obtained by Agrobacterium-mediated transformation into *Arabidopsis*, and five transgenic lines were selected in which the expression levels of  $\beta$  Gal-3 were more than 0.10% of the total soluble proteins. The transgenic lines with single locus were identified by Southern blotting. The expression of  $\beta$  Gal-3 and the highest protein accumulation level (about 4.76 mg /g fresh weight with a maximum of 0.27% of total soluble proteins) was

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