Expression of Spike Protein Gene of Porcine Epidemic Diarrhea Virus in Tobacco Plants

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Porcine epidemic diarrhea virus (PEDV) is a widespread coronavirus. It causes acute diarrhea and dehydration in pigs and leads to death with high mortality, especially up to 90% in 1-2 weeks old piglets. The spike protein plays an important role in the attachment of viral particles to the receptors of host cells. The spike protein also stimulates induction of neutralizing antibodies in the host. The spike protein gene of PEDV was cloned into plant expression vector. The tobacco leaves were transformed by *Agrobacterium*-mediated transformation. The integration of spike protein gene into plants was confirmed by genomic PCR. The expression level of spike protein mRNA was confirmed by Northern blot analysis. Immunoblot analysis showed the presence of spike protein in the transgenic tobacco plants. The amounts of spike protein in the transgenic plants was estimated approximately 0.11% of total soluble protein by ELISA assay. Successful expression of spike protein gene is a step towards edible vaccine against PEDV. [This work was supported by Korea Research Foundation Grant (KRF-2004-F00025), South Korea.]

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