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Development of the Downy Mildew Pathogen Bremia Lactucae on Transgenic Lettuce Expressing a Bacterial β-1,3-Glucanase

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Abstract: A β -1,3-glucanase gene from Arthrobacter sp. driven by the 35S promoter was singly transformed into two lettuce cultivars, Cobham Gree and Diana, using the binary vector system of Agrobacterium tumefaciens. Tansformation was confirmed by using Southern and Northern analysis, Npt II enzyme assays and segregation of resistance to kanamycin. Transgenic plants were infected with the letuce downy mildew fungus, Bremia lactucae which contains β-1,3-gluncan in its cell wall and alternations in the development the fungus could easily be monitored. Transgenic plants inoculated with B. lactucae showed different levels of resistant responses compared to the control and they were examined microscopically.

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