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## A New Selection Method for Pepper Transformation: Callus-Mediated Shoot Formation

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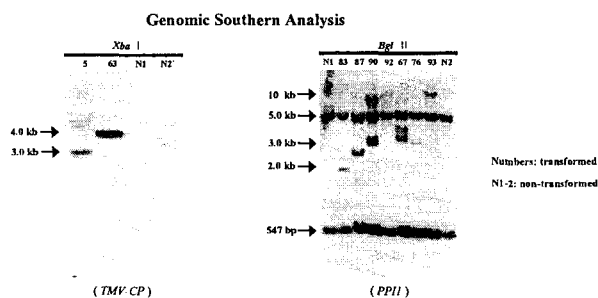
### Objectives

The research objective is to develop a selection system that helps find a transformed pepper with a much easier method.

### Materials and Methods

1. Materials: Pepper inbred lines used for breeding commercial F1 hybrids.
2. Methods: *Agrobacterium*-mediated transformation with *TMV-CP*, *CMV-CP*, *PPII* and *WRKY* gene; Southern blot; Resistance test

### Results and Discussion



To obtain a successful transformation system of pepper plants, we developed a selection system by selecting shoots grown from callus that were induced from tissue cut of cotyledons and hypocotyls. Most of shoots seem to grow directly from sub-epidermal cell layers near the wound surface of explants in 3-4 weeks and to elongate well on the selection medium. However, we never obtained a transformed pepper from the directly grown shoots. In contrast, some shoots were indirectly grown from the callus tissues that had formed around cut of the explants on the shoot selection medium. These cases were unusual because the callus was not easily formed from the wounding epidermis. Interestingly, those indirect shoots grown from the calli had a high probability to be transformed. This observation provides a strong selection means to avoid the non-transformed shoots. Four genes (*TMV-CP*, *CMV-CP*, *PPII*, *WRKY*) were transformed by this callus-mediated shoots formation and the highest transformation rate was up to 0.2% depending on genotype difference. This pepper transformation through the callus-mediated shoot formation is reproducible.