

## Rapid and efficient *Agrobacterium* mediated transformation of early scutellum derived calli of *indica* rice

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Rice is a staple food for humans and its demand in 2035 has been put at 852 million tons. Knowledge on genes and genome architecture helps in better understanding of growth and development mechanisms for crop improvement. Transgenic crops may offer a solution by means of higher yield and resistance to biotic and abiotic stresses. In this context, modification of *Agrobacterium* mediated transformation protocol for *indica* rice cultivar is imperative to increase transformation efficiency and reduce duration of transgenic development. Here, we developed an efficient *Agrobacterium* mediated transformation protocol using early scutellum derived calli of the *indica* rice cultivar Pusa Sugandh 2. Competency of 3, 4, 5 and 6 day old primary calli was compared with 21- day old secondary calli for *Agrobacterium* mediated transformation using a modified pCAMBIA 1304 harbouring *GFP-GUS* fusion gene driven by maize ubiquitin 1 promoter. The highest competency with stable transformation efficiency of 51% was observed for 5-6 day old primary calli. Molecular analysis confirmed stable integration of the transgene. Transgenic lines of Pusa Sugandh 2 were developed within a short period of two months using 5-6 day old primary calli.

**Keywords:** Callus culture, Mature embryo, Paddy, Pusa Sugandh 2, Transgenic rice