

Development of Transgenic Pigeon Pea Plants Harbouring *lec*-RLK Gene for Salinity Tolerance.

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Abstract—Pigeon peas are an important multi-use legume of tropics & sub-tropics. It has been recognised as the 2nd most important pulse crop in dry land areas. Plants are often subjected to unfavourable environmental stresses such as decreased water availability, extreme temperatures (heating or freezing), and decreased availability of soil nutrients, excess of toxic ions, excess of light and increased hardness of drying soil that hamper root growth. The ability of plants to adapt to different environments is directly or indirectly related with the plasticity and resilience of photosynthesis, in combination with other processes, determining plant growth and development. A remarkable feature of plant adaptation to abiotic stresses is the activation of multiple responses involving complex gene interactions and crosstalk with many other molecular pathways. Cell surface localized receptor-like kinases (RLKs) are the ideal candidates to initiate signaling pathways by perceiving and transmitting environmental signals to cellular machinery. Keeping in mind the role of RLK's; we have developed transgenic Pigeon pea plants harbouring *lec*-RLK gene for salinity tolerance. The putative T₀ plants were screened by PCR analysis and the PCR positive plants with transformation efficiency 18.6% were observed. The efficacy of the trans gene was studied in T₁ generation of the PCR positive plants.

Keywords: Pigeon pea, RLK, in-planta transformation, transgenics, PCR.