

Isolation and characterization of a novel pistil predominant gene that binds weakly to the chitinase, Chi2;1 promoter of tomato

ABSTRACT

A gene LN2-1-1 identified by screening a tomato pistil cDNA library has been found to encode a basic protein containing ankryin repeats. This clone was isolated by its binding ability to a specific DNA fragment in the tomato floral chitinase promoter using a yeast one hybrid system. An analysis of the temporal and spatial patterns of gene expression through northern blotting has demonstrated the highest level of expression in mature tomato pistils. In situ hybridization revealed that the mRNA was maximal on the upper half of the style and decreased in a gradient from the top to the lower half of the style. Hybridization was also detected on the stigma, ovules and ovary walls. The LN2-1-1 could possibly play a role in modulating the defense mechanism of tomato flowers based on its ability to bind to the chitinase, Chi 2;1 promoter.

Keyword: Chi2;1; Tomato; Yeast one-hybrid system