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(54) **CHITINASE ENCODING DNA MOLECULES FROM COTTON EXPRESSED PREFERENTIALLY IN SECONDARY WALLED CELLS DURING SECONDARY WALL DEPOSITION AND A CORRESPONDING PROMOTER**

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See application file for complete search history.

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(57) **ABSTRACT**

The present invention relates to isolated nucleic acid molecules encoding endogenous cotton chitinases and corresponding promoters, which are preferentially expressed in secondary walled cells during secondary wall deposition. The polypeptide encoded by the nucleic acid molecule, a DNA construct linking the isolated nucleic acid molecule with a promoter, the DNA construct incorporated in an expression system, a host cell, a plant, or a plant seed are also disclosed. The present invention also relates to a DNA construct linking the isolated promoters with a second DNA as well as expression systems, host cells, plants, or plant seeds containing the DNA construct. Methods of imparting resistance to insects and fungi, regulating the fiber cellulose content, and methods of expressing a gene preferentially in secondary walled cells during secondary wall deposition are also disclosed.

2 Claims, 12 Drawing Sheets