Plants Resistant to Fungal Disease

Tech ID: 29775 / UC Case 2015-053-0

BACKGROUND

Botrytis cineria and *Verticillium dahlia* are fungal diseases that infect more than 200 plant species. *Botrytis cineria* alone infects almost all vegetable and fruit crops and annually causes $10 to $100 billion in losses worldwide. Methods of controlling both fungal diseases include fumigating with methyl bromide, and applying fungicides and biological controls. However plants that are genetically resistant to both diseases and do not require additional pest control methods are desirable.

BRIEF DESCRIPTION

University of California, Riverside researcher Prof. Hailing Jin and her colleagues have developed plants that are resistant to *Botrytis cineria* and *Verticillium dahlia*. These plants are genetically engineered to silence fungal pathogens that transfer "virulent" small RNA effectors to the plant that cause disease. This has led to the development of plants that are resistant to *Botrytis cineria* and *Verticillium dahlia*.

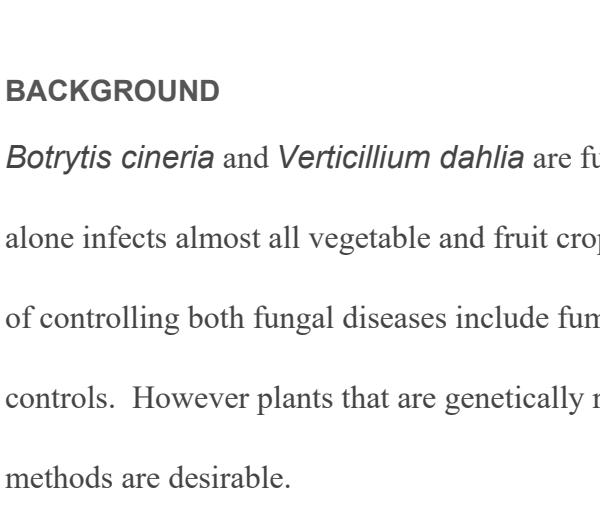


Fig. 1 shows fruits (bottom) with dramatic reductions in gray mold disease. Gray mold disease is caused by *Botrytis cineria.* The bottom fruits were sprayed with small RNA (sRNA) against *Botrytis cineria* pathogens dicer-like 1 *& 2 (BcDCL).* The top fruits were sprayed with water and this conferred no protection against gray mold disease. Immunity to pathogens may be genetically engineered into plants to express BcDCL-1 and BcDCL-2.

SUGGESTED USES

This technology may be used to develop crops that are resistant to *Botrytis cineria* and *Verticillium dahlia* and that do not require fungicides or biological controls.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,085,051	08/10/2021	2015-053
United States Of America	Issued Patent	10,724,049	07/28/2020	2015-053

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OTHER INFORMATION

KEYWORDS

fungal, small RNA, DCL, sRNA, pathogenicity, immunity, host, Botrytis cineria, Verticillium dahlia, pathogens, gray mold

CATEGORIZED AS

- Agriculture & Animal Science
  - Other
  - Transgenics

RELATED CASES

2015-053-0

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