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Microwave energy supplied by a prototype oven prevents the spread of Fusarium wilt during the propagation of melon plantlets by seed

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Abstract

The re-use of propagation trays in nursery greenhouses is one of the main ways in which fusarium wilt is spread in melon crops *(Cucumis melo).* The causal agent of the disease is the fungus *Fusarium oxysporum* f. sp. *melonis.* This paper reports that exposing these seed trays to the energy produced by a prototype microwave oven during the commercial production of melon plantlets can prevent the spread of this pathogen with only a very small increase in production costs.

Additional key words: artificial substrate, *Fusarium oxysporum* f. sp. *melonis,* microwaves, seed trays.

Resumen

Prototipo de horno microondas para la aplicación de energia limpia para evitar la dispersion de la fusariosis durante la propagación de semillas de melon

La reutilizacion de las bandejas de alvéolos empleadas por los productores de plántulas en invernaderos especializados es una de las principales causas responsables de la dispersion de la fusariosis vascular del melon *(Cucumis melo),* causada por el agente patogeno *Fusarium oxysporum* f. sp. *melonis.* En este trabajo se ha demostrado que, durante la producción comercial de plántulas de melon, aplicando a dichas bandejas la energia producida por un prototipo de horno microondas, es posible, con una reducida incidencia en el coste de produccion de las plántulas, evitar la dispersion de la fusariosis en el proceso comercial de produccion de plántulas de melon.

Palabras clave adicionales: bandejas de propagacion, *Fusarium oxysporum* f. sp. *melonis,* ondas de alta frecuencia, substrato artificial.

Introduction

Fusarium wilt, caused by the fungus *Fusarium oxysporum* Schlecht f. sp. *melonis* Snaider and Hansen (Fom), is a destructive disease of melons that can reduce production by up to 90% (Gonzalez Torres *et al.,* 1988; Champaco *et al.,* 1993).

In Castilla-La Mancha, the foremost melon-producing region of Spain, transplanted melon plantlets are grown under plastic. These plantlets, produced by nurseries, are raised in controlled environment chambers in polyurethane propagation trays containing a number of cells filled with substrate; one melon seed is planted in each. The plantlets thus produced cost something over 0.19 € each, which gives an idea of the importance of this industry.

The re-use of propagation trays is one of the main

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