

大蒜根系分泌物的化感作用

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Allelopathy of garlic root exudates.

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摘要

以苍山白蒜和蔡家坡紫蒜为材料, 采用水培方法收集根系分泌物, 研究了2个大蒜品种的根系分泌物对莴苣种子发芽和幼苗生长及对黄瓜枯萎病菌、西瓜枯萎病菌的化感效应. 结果表明: 2个大蒜品种的根系分泌物对莴苣种子发芽和幼苗生长均表现为低浓度 (0.1、0.2 g · mL⁻¹) 促进、高浓度 (0.4、0.6 g · mL⁻¹) 抑制, 高浓度时蔡家坡紫蒜的抑制作用大于苍山白蒜; 对黄瓜枯萎病菌和西瓜枯萎病菌的菌丝生长及孢子萌发均表现为抑制作用, 随着根系分泌物浓度的提高, 抑制作用增强, 其中黄瓜枯萎病菌较敏感, 且蔡家坡紫蒜的抑制作用大于苍山白蒜.

关键词: 大蒜 根系分泌物 化感作用

Abstract:

By the method of water culture, the root exudates of Cangshan garlic and Caijiapo garlic were collected to study their allelopathic effects on the seed germination and seedling growth of lettuce, and on the development of pathogens *Fusarium oxysporum* f. sp. *cucumerinum* and *F. oxysporium* f.sp. *niveum*. The root exudates of the two garlic cultivars promoted the lettuce seed germination and seedling growth at low concentrations (0.1 and 0.2 g · mL⁻¹), but showed inhibitory effects at high concentrations (0.4 and 0.6 g · mL⁻¹), with the inhibitory effects being stronger for the root exudates of Caijiapo garlic. The two garlic cultivars' root exudates also had inhibitory effects on the mycelia growth and spore germination of the pathogens, and the effects increased with increasing concentration of the exudates, being stronger for Caijiapo garlic than for Cangshan garlic. *F. oxysporum* f. sp. *cucumerinum* was more sensitive to the inhibitory effects of the root exudates of the two garlic cultivars, as compared to *F. oxysporium* f.sp. *niveum*.

Key words: garlic root exudates allelopathy

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