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覆膜滴灌棉田不同耕作措施对棉花黄萎病的影响

Effect of various tillage measures on cotton verticillium wilt in drip irrigation cotton field under film

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中文关键词: [灌溉](#) [耕作](#) [试验](#) [棉花黄萎病](#) [微菌核](#) [拮抗微生物](#)

英文关键词: [irrigation](#) [cultivation](#) [experiments](#) [verticillium wilt](#) [microsclerotia](#) [antagonistic microorganism](#)

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作者 单位

王 兰 1. 塔里木大学植物科学学院, 阿拉尔 843300; 2. 新疆生产建设兵团塔里木盆地生物资源保护利用重点实验室, 3. 中国农业大学农学与生物技术学院, 北京 100094

冯宏祖 1. 塔里木大学植物科学学院, 阿拉尔 843300

龚明福 2. 新疆生产建设兵团塔里木盆地生物资源保护利用重点实验室,

周立刚 3. 中国农业大学农学与生物技术学院, 北京 100094

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中文摘要:

棉花膜下滴灌技术是先进的栽培技术与灌水技术的集成, 该文研究了膜下滴灌条件下不同耕作措施 (棉花连作、稻棉轮作、深翻) 对棉花黄萎病的影响。结果表明, 在膜下滴灌条件下, 随着连作年限的延长, 棉花黄萎病病情加重, 连作10 a时达最大值, 随后呈下降趋势; 连作棉田土壤中黄萎病微菌核与黄萎病病情指数的数量变化基本一致, 细菌数量随着连作年限的延长而呈现减小趋势, 放线菌和真菌数量则呈增加的趋势。重病田进行稻棉轮作对棉花黄萎病菌的抑制作用是一个逐步衰减的过程, 稻改棉第5年黄萎病病情指数恢复到轮作前的水平; 深翻的防病作用在于有效地减少了耕作层0~30 cm土层中黄萎病微菌核的数量。在膜下滴灌条件下, 棉花整个生育期均存在黄萎病菌的拮抗微生物, 但不同生育期土壤拮抗微生物种类和数量不断变化, 应用对峙培养获得了15株对棉花黄萎病菌有较好拮抗作用的生防菌株, 为以后棉花枯黄萎病生防制剂的开发和应用奠定基础。

英文摘要:

Drip irrigation technology under film is an integrated technique of advanced cultivation and irrigation in the cotton field. The effect of various tillage measures on cotton verticillium wilt and its antagonistic microorganisms was studied. The results showed that under drip irrigation conditions, with the extension of continuous cropping year, the disease severity (DS) of verticillium wilt became more and more serious, and the maximum was in continuous cropping 10 years then decreased, and the quantity change of microsclerotia of Verticillium dahliae was basically identical with verticillium wilt disease index. Under continuous cropping conditions, the number of bacteria in soil presented the trend of decrease, but actinomycetes and fungi were opposite. The inhibition effect of rice-cotton rotation on Verticillium wilt was a gradual decay process in the serious disease fields, and the disease index for the fifth year after rotation restored to the level before rotation. The deep plowing (60 cm) could significantly reduce the number of microsclerotia in 0-30 cm plough layer. Under the drip irrigation conditions, the antagonistic microorganisms existed in the whole cotton growth period, but the species and quantity of antagonistic microorganisms were constantly changing. Fifteen strains with high antagonistic effect were obtained by using confront culture, so as to lay a foundation for the further exploitation and application of biocontrol preparation against verticillium wilt.

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