

论文

抗烟草青枯病菌的枯草芽孢杆菌SH7的筛选与鉴定

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摘要:

由青枯雷尔氏菌(*Ralstonia solanacearum*) 侵染引起的烟草青枯病是我国烟区的主要病害之一,严重影响烟草的产量和品质。从云南和贵州烟草青枯病重病区采集600份健康烟草根基土壤,并从中筛选出1株对 *R. solanacearum* 具有较强拮抗活性的细菌菌株SH7,该菌株在室内平板抑菌试验中,对 *R. solanacearum* 抑菌带宽可达13 2 mm。预先用SH7无菌发酵液保护烟株根部,对 *R. solanacearum* 防效达到66.0%。SH7发酵液经70%(NH₄)₂SO₄饱和度沉淀并透析后得到的蛋白粗提液经平板抑菌活性检测,对 *R. solanacearum* 具有很强的抑菌活性,抑菌带宽为15 7 mm。初步确定SH7菌株产生的主要抑菌活性物质为蛋白多肽类物质。经菌体形态学、生理生化测定和16s rDNA序列测定,结果表明:SH7菌株为枯草芽孢杆菌(*Bacillus subtilis*)。

关键词: 烟草青枯病 青枯雷尔氏菌 枯草芽孢杆菌 生物防治

Screening and Identification of *Bacillus subtilis*SH7 Strain against *Ralstonia solanacearum*

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Abstract:

The tobacco bacterial wilt disease caused by *Ralstonia solanacearum* is one of the important diseases of tobacco in China, and influences the field and quantity of tobacco leaves. Six hundred samples of root soil were collected from the serious disease areas in Yunnan and Guizhou, and screened SH7 strain showed strong antagonistic activity against *R. solanacearum*. The result showed that the inhibition zone width against *R. solanacearum* was 132 mm in the antibacterial test plate of laboratory. The control effect of the sterile fermentation broth of SH7 strain against *R. solanacearum* was 66.0% by pretreatment of tobacco root. The inhibition of crude protein extraction after precipitation and dialysis by 70% (NH₄)₂SO₄ was strong with 15.7 mm of inhibition zone width and the inhibition determination of supernatant after removing precipitation by 70% (NH₄)₂SO₄ was weak, which indicated that the antifungal substance was possibly protein. The result of phenotypic and general physiological and biochemical determination and 16s rDNA sequence analysis showed that SH7 strain belonged to one strain of *B. subtilis*. The production availability of *B. subtilis*SH7 strain was also discussed in this study.

Keywords: tobacco bacterial wilt disease; *Ralstonia solanacearum*; *Bacillus subtilis*; biological control

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