



Bacillus thuringiensis Isolation from the Environments of Boron Mines and Effects of Boric Acid on Bioactivity

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Abstract:

Bacillus thuringiensis (Bt) isolation from the environments of boron mines, the characterization based on cry gene content, boron tolerance, insecticidal crystal protein production and bioactivity of Bt isolates were examined in this study. PCR analysis indicated the presence of Bt strains with cry1 (100%), cry2 (41%) and cry1 plus cry2 (43%) genes. Boron tolerance of Bt isolates grown in different boric acid concentrations changed from 25 to 75 mM. Moreover, boric acid prolonged the lag phase of the growth curve. Furthermore, Bt-KE63-64 isolate at 50 ppm caused 75% mortality against *Cadra cautella* larvae. Two protein bands at 132 kDa and 64 kDa were detected with SDS-PAGE analysis. Increasing concentration of boric acid resulted in a decrease at the level of Cry protein expression. Finally, addition of 1% boric acid to spore-crystal mixtures of Bt isolate didn't cause any additive effect on the bioactivity. In conclusion, it is the first time that Bt with high bioactivity was isolated from the environments of boron mines and boric acid tolerance of some of the Bt isolates was up to 75 mM.

Biography:

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Publication of speakers:

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