# Expression of the *cry1Ac1* Gene Under the Control of the Native or the $\alpha$-amylase Promoters in *Bacillus thuringiensis* subsp. *kurstaki* Cry$^-$B

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Expression of the *cry1Ac1* gene of an acrystalliferous *B. thuringiensis* strain under the control of the native or *$\alpha$-amylase* gene promoter were investigated. The *cry1Ac1* gene was cloned in *B. thuringiensis-E. coli* shuttle vector, pHT3101, under the control of either the native promoter (pProAc) or the *$\alpha$-amylase* promoter from *B. subtilis* (pAmyAc). These two recombinant plasmids were successfully expressed in *B. thuringiensis* subsp. *kurstaki* Cry$^-$B. The first transformant (ProAc-CB), harboring pProAc, expressed about 130 kDa protein begining 24 hr after inoculation, just as in the case of *B. thuringiensis* subsp. *kurstaki* HD-73, a wild type. The second pAmyAc-transformant (AmyAc-CB) began to express the gene just 6 hr after inoculation, but Western analysis showed that the activity of the *$\alpha$-amylase* promoter was relatively weaker than that of the native promoter. As expected, their toxicity against the diamondback moth was dependent on both the amount and the time of Cry1Ac1 protein expressed. These results suggest that the two recombinant plasmids constructed above can be successfully introduced into *B. thuringiensis* strains lacking the *cry1Ac* gene, to result in enhancing their toxicity and/or in expanding their host spectrum.