Efficacy of *Beauveria bassiana* (Balsamo) Vuillemin against the bollworm, *Helicoverpa armigera* (Hübner) (Lepidoptera: Noctuidea) under laboratory conditions.

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1 SUMMARY

Damage of cotton by the bollworm *Helicoverpa armigera* heavily compromises the cotton production system in West Africa, particularly in Benin. Control of this insect pest was mainly done by the application of chemicals leading to the build-up of resistant population and other side effects. To develop an environmentally friendly strategy against the pest, this study aimed to evaluate the efficacy of *Beauveria bassiana* isolates on *H. armigera* larvae. Thirteen isolates of the fungus were screened for their virulence to *H. armigera* third instar larvae using at 10^7 conidia.mL^{-1}. In a second trial the effects of five concentrations (10^5, 10^6, 10^7, 10^8, 10^9 conidia.mL^{-1}) of the two most virulent isolates were performed. Conidia suspension was applied on each larva topically. This study finding showed in the first trial, four isolates with high mortality, namely Bb71, Bb11, Bb3, and Bb339. In addition, in the second ones, mortality rates of caterpillars increased with fungal concentrations. The induced mortality varied from 20.00 ± 2.88% to 63.33 ± 6.66% and from 33.33 ± 7.26% to 71.66 ± 4.40% for Bb3 and Bb11 isolates, respectively. Different lethal concentrations (LC50) were estimated to 9.68 x 10^{14} conidia.mL^{-1}, 1.70 x 10^{30} conidia.mL^{-1}, 9 days after inoculation for Bb11 and Bb3, respectively. In conclusion, this alternative strategy using *B. bassiana* as a biopesticide to control *H. armigera* was promising. It could better manage the pest in a perspective of synergistic effect evaluations with other biocontrol agents.