

Considering the importance coated by the bacterium *Bacillus sphaericus* in vector control. This is to evaluate its biological impact on the locust *Locusta migratoria* (Linnaeus 1758) in order to develop its entomopathogenic efficiency as well as possible with an aim of enhance its spectrum of action. The here presented work is based thus on the use of the entomopathogenic bacterium *Bacillus sphaericus* on the larvae at the 5th instar (L5) of the migratory locust *Locusta migratoria* and of seeing its effect on the hemolymphatic metabolites; proteins and carbohydrates like over the weight evolution, and the duration of the development of the larvae L5. The bacteria strain used was isolated from soil in two groves south of Algeria, after purification, it is identified according to its physiological and biochemical characters. The locusts are derived from breeding in mass conducted at the laboratory. The results obtained show us that *B. sphaericus* generated a disturbance on the level of the hemolymphatic metabolites of the migratory locust; a significant decrease in the proteinemy and carbohydrate. The weight growth is marked more in the control larvae compared to the larvae treated by *B. sphaericus* with various concentrations. Finally the fifth instar larval development takes place for the larvae treated for one longer period compared to the control