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LIST OF ABBREVIATIONS:

TiO_2	Titanium Dioxide
Bt	Bacillus Thuringiensis
TNT	H-Titanate Nanotubes
TNS	H-Titanate Nanosheets
Bt-TNT	Bacillus-TNT Nanocomposite
Bt-TNS	Bacillus-TNS Nanocomposite
TNT_s	Sodium Titanate Nanotubes
TNT_k	Potassium Titanate Nanotubes
TNP	TiO_2 Nanoparticles
Bt-TNP	Bacillus-TNP Nanocomposite
X1	1 gm/L concentration
X2	0.75 gm/L concentration
X3	0.5 gm/L concentration
X4	0.25 gm/L concentration
M	Males
F	Females

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ABSTRACT:

The cotton crop is one of the most important strategic crops in Egypt, but there are several types of insect pests which are very harmful to this crop. From these pests are the black cutworm, *Agrotis ipsilon (Hufnagel) (Lepidoptera: Noctuidae)* and cotton leafworm *Spodoptera littoralis (Boisd.) (Lepidoptera: Noctuidae)*. Through the past decades and until now synthetic chemical pesticides such as parathion, organo-phosphorous, and synthetic pyrethroid have been used in this field to resist this pest, but the main problem comes from the extensive use of large amounts of these pesticides which cause environmental pollution. Some trials were performed to use natural alternative pesticides called biopesticides which are either bacteria, fungi or viruses. Bacteria are the most used biopesticide especially *Bacillus Thuringiensis Subspecies Kurstaki (BTK)*, but the problem is the low activity of *Bacillus* against cotton leafworm and cutworm. Herein, for the first time the role of nanotechnology comes to make good use of some ecofriendly nanomaterials with its unique physical, chemical and electrical properties to enhance the activity of *Bacillus Thuringiensis* (Bt) in the form of nanomaterial-based biopesticide. In the present study, we will focus on the use of TiO_2 nanotubes (TNT), nanosheets (TNS), nanoparticles (TNP), sodium titanate (TNTs) , and potassium titanate (TNT_k) alone and as nanocomposites with *Bacillus* (Bt) to study their insecticidal activity against the above mentioned pests. Also the effect of the used nanomaterials on *Bacillus* activity and their impacts on the different biological features of the two worms such as larval and pupal mortality, adult longevity, adult sex ratio, pupation, fecundity and percent of eggs hatching were studied.