

## **Agro-waste Mediated Silver Nanoparticles and its Effect against *Helicoverpa Armigera***

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### **Abstract**

*Helicoverpa armiger* is the common pest of maize. Every year, around, 20–40% of crops are lost due to plant pests and pathogens. Recent advances in nanotechnology have provided promising tools for management of insect pest of essential commodities. In the present study, the effects of green synthesized silver nano particles (AgNPs) produced by *Zea mays* silk on corn pest *H. armiger* were investigated. The green synthesized AgNPs were bio-physically characterized by UV–vis spectroscopy, scanning electron microscopy and energy dispersive X-ray analysis. AgNP was highly effective against the larvicidal and pupicidal on *H. armigera* with LC50 values ranging from 16.134 ppm to 62.110 ppm. Consumption index, relative growth rate, the efficiency of ingested and digested food values were highly reduced in silver nanoparticles treatment. Further the *Z.mays silk* synthesized AgNPs negatively affected on adult longevity and fecundity of *Harmigera*. This study concludes that the effects of AgNPs are significant against *H. armiger* hence could be used as an alternative pest control agent in the management of crop pests.

**Keywords:** *Helicoverpa armigera*, Nanotechnology, Silver nanoparticles, *Zea mays*

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