

ABSTRACT:

Bombyx mori is a domestic silk moth, belongs to *Bombycidae* family, closely related to wild silk moth *Bombyx mandarina*. *B. mori* is a monophagous farmed Lepidopteran, linked to the finest yarn varieties ever made for textiles. Bacterial diseases are among the major causes of the silkworm death. *Flacherie*, *muscardine*, *grasserie* and *pebrine* are the common infectious diseases of worms. *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Proteus vulgaris*, *Citrobacter freundii*, *Enterococcus faecalis*, *Serratia liquefaciens*, *Serratia marcescens* and *Pseudomonas aeruginosa* are just few of the bacterial strains that can infect silkworms. Previously, use of antibiotics was found useful against bacterial strains to control these infections but bacteria developed resistance against these antibiotics hence effectiveness is decreased with time. Fabricated nanoparticles (NPs) have the ability to significantly address this issue because they possess good antibacterial potential against a variety of pathogens, especially multidrug-resistant (MDR) bacteria. In current study, pathogenic bacteria were isolated from diseased silkworm larvae. Pathogenicity was checked by blood agar test. DNA was extracted from these bacterial strains to isolate 16S ribosomal RNA. Sequencing confirms the *Enterococcus faecalis* and *Klebsiella pneumoniae* bacterial strains. Silver nanoparticles were synthesized from plant extracts (*Azadirachta indica*, *Calotropis procera*, *Eucalyptus camaldulensis*, *Putranjiva roxburghii*, *Erythrina suberosa*, *Syzygium cumini*, *Albizia lebbek* and *Ficus religiosa*). The bactericidal activity of these plant extracts and their respective silver nanoparticles was evaluated by using agar well diffusion method. DPPH assay was performed to check the antioxidant activity. Significant bactericidal activity was recorded from both the plant extracts and their respective silver nanoparticles. All nanoparticles possess antioxidant potential but *Putranjiva roxburghii* showed exceptional activity. Furthermore, it was concluded from the current studies that Ag-NPs from plant extracts possess a great potential to be used as a replacement of antibiotics. Hence further studies are required to investigate their effectiveness and their mechanism of action to accelerate their functioning prior to possible clinical use.