

## Abstract

One of the most typical illnesses picked up in hospitals is conjunctivitis. Children below the age of seven have the greatest risk of diagnosis and the most significant occurrence is between zero and four years old. Ages 22 for women and 28 for men mark the second high of the distribution. Current study was designed for screening and characterization of conjunctival bacterial pathogens and their sensitivity against different antibiotics (ciprofloxacin, azithromycin, levofloxacin and metronidazole), aqueous plant extracts (*Azadirachta indica*, *Syzygium cumini*, *Eucalyptus camaldulensis*, *Ficus religiosa*, *Allium sativum*, *Syzygium aromaticum*, *Citrus limon* and *Aloe barbadensis*) and green synthesized silver nanoparticles. Sampling was done from Fatima Memorial Hospital, Lahore. After isolation from samples, screening of pathogenic bacteria was done by blood agar test. To check the pathogenicity of bacterial isolates, types of hemolysis shown by bacteria were observed. Well diffusion method was used to observe antibacterial activity of selected pathogenic strains. Results showed that all antibiotics were significantly effective against isolated bacteria. Out of aqueous plant extracts *S. cumini*, *C. limon* and *E. camaldulensis* demonstrated significant antibacterial activity ( $15.5 \pm 0.76$  to  $10.33 \pm 1.45$ ;  $21.33 \pm 0.88$  to  $12.66 \pm 0.33$ ;  $13.66 \pm 1.20$  to  $9 \pm 0.57$  respectively) against bacterial strains *S. aromaticum*, *A. indica*, *C. limon*, *A. barbadensis*, *A. cepa* and *F. religiosa*. Green synthesized silver nanoparticles showed more significant results with the zones of inhibition  $12.5 \pm 0.62$  to  $9.83 \pm 0.72$ ;  $13.33 \pm 1.20$  to  $8.83 \pm 0.72$ ;  $16.16 \pm 1.09$  to  $10.83 \pm 1.01$ ;  $11.66 \pm 0.66$  to  $8.83 \pm 0.72$ ;  $13.16 \pm 0.59$  to  $8.33 \pm 0.88$  and  $12.16 \pm 1.16$  to  $7.33 \pm 0.66$  respectively. Molecular characterization was done by DNA extraction followed by amplification of specific gene (1500bp) and its sequencing. After sequencing, unknown bacterial strains were identified as *Bacillus thuringiensis*, *Bacillus paramycoides*, *Pseudomonas aeruginosa*, *Bacillus coahuilensis* and *Bacillus cereus*. This study revealed that because of increased bacterial resistance against antibiotics, plant extracts and green synthesized AgNPs preparations could be used as alternative and effective biological antibacterial tools against these pathogens replacing the antibiotic therapy.